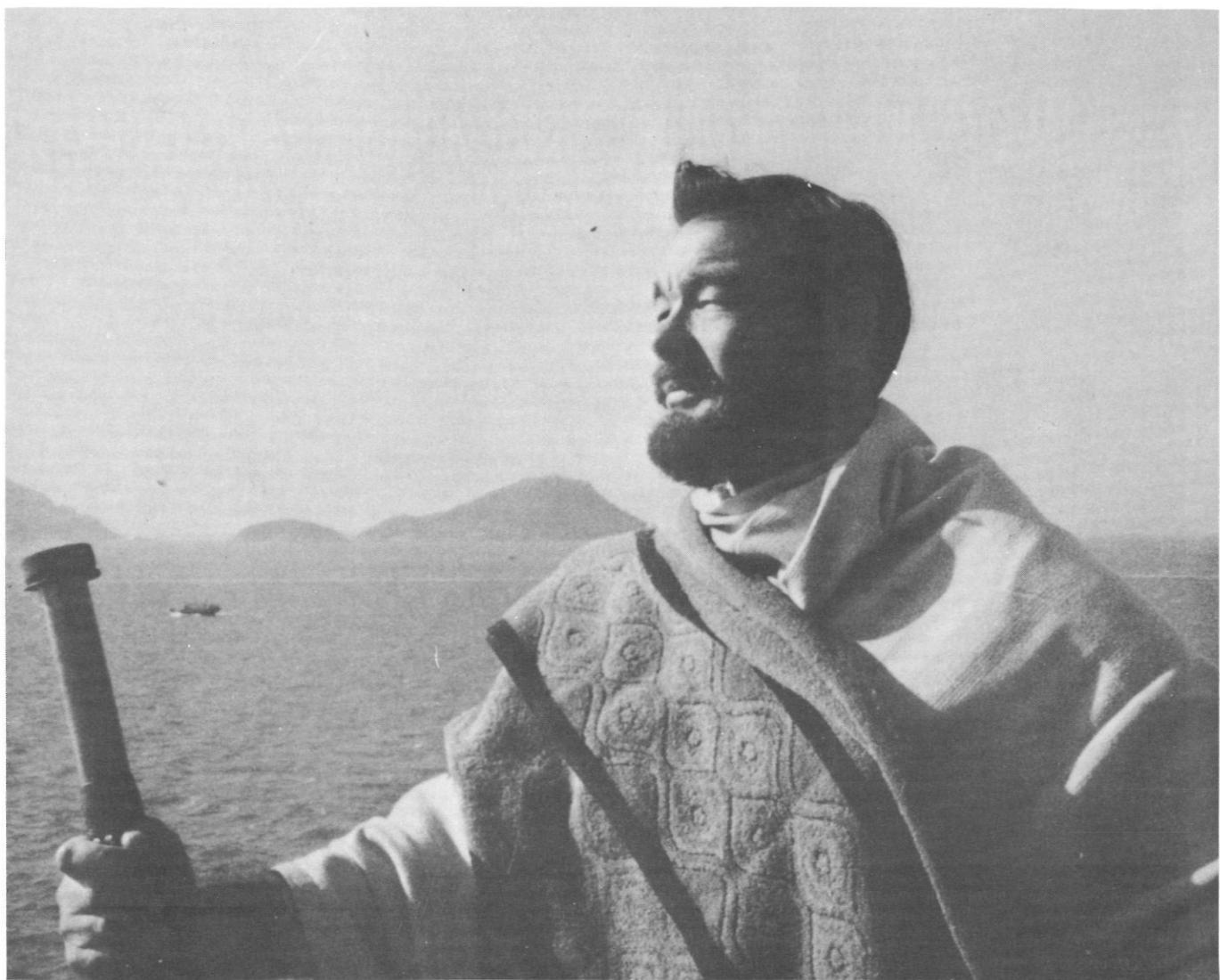




**U. S.
NAVY
Medicine**



February 1972

United States Navy Medicine

Vol. 59

February 1972

No. 2

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NAVMED P-5088

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Credits: All pictures are Official U.S. Navy photographs unless otherwise indicated.

The front cover photograph shows Navy Senior Chief Boiler Technician Thomas Perritt portraying the "evil King Jabin" during the joint Naval/Marine amphibious training exercise near the town of Paluan on the tropical southern island of Mindoro, Republic of the Philippines. For more on this curious operation, see the first news item under "Medical Rounds on the International Circuit," page 4.

Page 2 photo reveals VADM George M. Davis, MC, USN (right), Surgeon General, with some of the student nurses in the Washington area who were commissioned ensigns/USNR in the Surgeon General's Conference Room, BUMED, on 2 Dec 1971. See "Student Nurses Go NAVY" on page 52.

For excellent photographic coverage of "AMSUS Awards" on pages 30 – 31, we are indebted to the Photography Division of the Medical Graphic Arts Dept., Naval Medical School, NNMC, Bethesda, Md.

Graphic art support by Mrs. S.B. Hannan, Code 4542, BUMED, is acknowledged.



from the Chief

Last month we began a brief review of the present status of the Navy Medical Department by considering developments within the clinical area. Let us now examine the fundamental areas of personnel and administration.

To combat the chronic physician and dentist shortage that plagues all health care delivery systems, we have implemented a series of programs designed to reduce shortages, complement available physicians by relieving them of nonprofessional functions, and extend their professional capability with modern diagnostic and treatment support systems.

A significant percentage of those who have participated in the Berry Plan who are fully trained in their specialties, have accepted continuation pay and are remaining with us. The Medical/Dental and Osteopathic Student Scholarship Programs, which provide financial assistance to students in civilian universities in return for obligated service in the Armed Forces, will broaden the prospects for recruiting and retaining a career oriented Medical and Dental Corps. The Medical School Scholarship Program was heavily oversubscribed and 200 highly qualified candidates have already been selected for participation. The program for dentists commenced last fall and 32 dental scholarships will be added next fall. The Program has been further enhanced by the establishment of a Life Sciences Department at the Naval Academy which will offer the necessary prerequisite courses for medical/dental school. Selected midshipmen may go on to medical/dental school under the Scholarship Program. A maximum of 2% of NROTC graduates can also enter this Program.

In keeping with the recommendations made by the American Medical Association's "Citizens Commission on Graduate Medical Education," the Navy will dedicate as many of its first year postdoctoral medical trainee (intern) positions to the "continuum of medical education concept" as is deemed appropriate by my Professional Advisory Board. It is anticipated that by July 1974 all postdoctoral medical education programs will be dedicated to this concept and the internship

as a free-standing year will be absorbed into these programs. The quality of our postdoctoral programs in medical education is further enriched by a Technical Director of Medical Education and Clinical Research on my staff. An eminent medical educator familiar with academic medicine, civilian practice and military medicine, he coordinates and strengthens the training programs through continual monitoring and evaluating of our personnel and facilities. We are particularly interested in the concept of mandatory continued educational programs for our physicians.

Senior student programs in nursing, optometry and dietetics have been quite successful. Progress in paramedical disciplines is evident with further extension of the Nurse Clinician capability to our nurses, and further development of the Physician's Assistant Program involving our corpsmen. Negotiations are presently underway with a prominent civilian university for culmination of the Navy Physician's Assistant education in a bachelor's degree, by affiliation with a school of medicine.

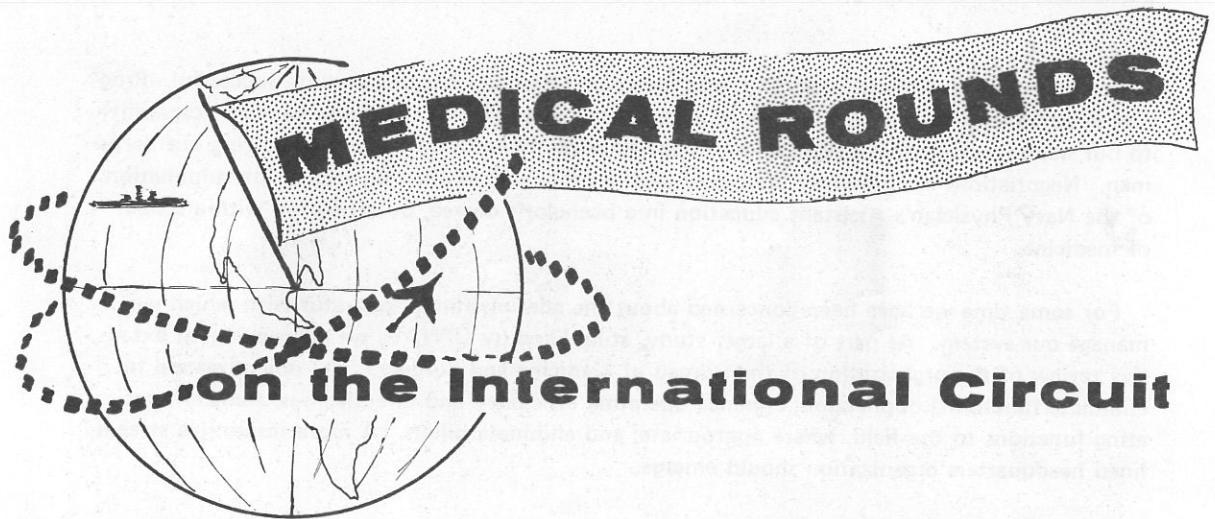
For some time we have been concerned about the administrative apparatus with which we manage our system. As part of a larger study, stimulated by OPNAV, we are making an extensive review of the organization of the Bureau of Medicine and Surgery. The objectives are to: eliminate functional duplication; enhance operating efficiency and effectiveness; transfer operating functions to the field, where appropriate; and eliminate billets. A more responsive streamlined headquarters organization should emerge.

We are in the early stages of a developmental effort to improve our management subsystem. Concentrating on the regional dimension of our organization, we are exploring ways: to more accurately predict the magnitude and mix of the patient populations we serve; to estimate the kinds of future work we will face in terms of disease or condition categories that arise in such populations; to devise a better method of relating resource requirements and consumption to work cast in terms of diseases and conditions; and to construct an improved method of performance evaluation and control.

We have had six months of experience with the regionalization plan. The pilot Naval Regional Medical Center integrated the 1,400-bed specialty and general hospital, Naval Hospital, Portsmouth, Va., and 15 dispensaries located in the Tidewater, Va., area. Under the command of a single Regional Medical Director, this new concept will permit expanded and improved health care services for all authorized beneficiaries, improved patient/staff/command satisfaction, and more efficient and effective use of Navy health care resources in a geographic area. We have every reason to anticipate that this plan will be placed into effect in other areas of Fleet, Marine Corps, and dependent concentrations.

Time and space do not permit a detailed comprehensive review of all aspects of the developments and innovations with which Navy Medicine is concerned. This cursory review serves only to remind us that great strides are being made and much remains to be accomplished. The opportunity to build and the responsibility to further the achievements of Navy Medicine are our's.





JOS-11 TRAINING OPERATION

A joint naval/marine amphibious training operation called JOS-11 (taken from the Book of Joshua, Chapter 11) was conducted near the town of Paluan on the tropical southern island of Mindoro in the Republic of the Philippines, 3-10 January 1971. According to the Old Testament, in Jerusalem about the year 1451 B.C., many battles were fought and won by Joshua who had succeeded the lawgiver, moral teacher and prophet, Moses. During Joshua's 110 reported years of life, he was said to have smote his enemies from Kadeshbarnea to Gaza and from Goshen to Gibeon, capturing the city of Jericho and defeating King Jabin of the leading kingdom, Hazor, in a celebrated amphibious battle.

Reenacting that amphibious battle, in the Western Pacific, to provide training for Amphibious Ready Group Bravo (ARG Bravo) and the Marine Battalion Landing Team 2/4 (BLT 2/4), were Navy and Marine Corps personnel from the U.S. Seventh Fleet amphibious ships: the amphibious transport dock ship, JUNEAU; the dock landing ship, ALAMO; the amphibious cargo vessel, ST. LOUIS; and the tank landing ship, WHITFIELD COUNTY. A simulated aggressor force ashore consisted of BLT 2/4 personnel, with naval

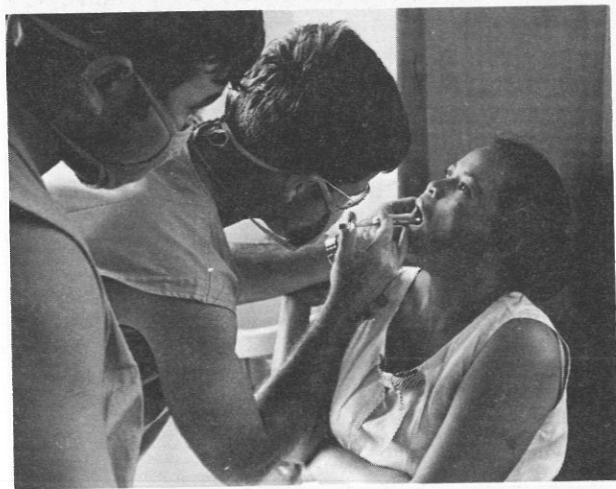
officers and men in costume portraying the roles of ministers under King Jabin. Members of the ARG Bravo conducted a night raid to smite the Jabin forces, capturing both the king and his ministers who dramatically kneeled to defeat.

Following the training operation, all participants joined with the people of Paluan, in cooperation with the local government, to undertake several civic action projects that included town beautification, road repairs and construction, and medical/dental care. Medical and dental teams were active 7-9 January 1971, during which time over 1200 Paluans received medical treatment and 150 received dental care.

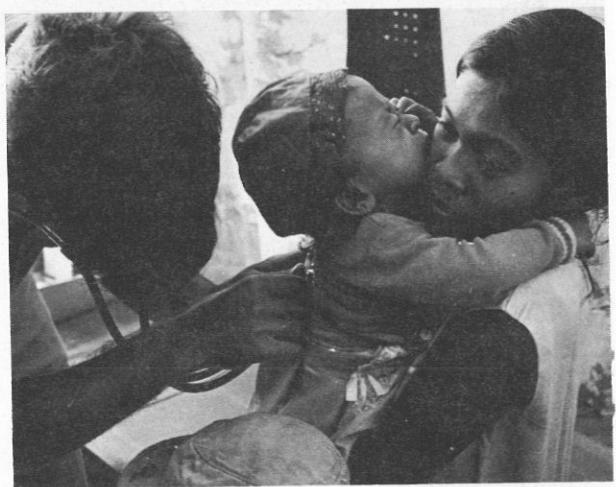
The Medical Team included LT William J. Paladine, MC, USNR, of 2nd Battalion, 4th Marines; LT Fred Suess, MC, USNR, of the U.S.S. St. Louis (LKA-116); ten hospital corpsmen; and assistance from Dr. Villar, a lady physician who resides in Paluan. Most of the medical treatment was directed toward respiratory disease, especially pulmonary tuberculosis and bacterial pneumonia. Also treated were cases of meningitis, asthma, iron-deficiency anemia, diarrhea, ear-eye-throat infections, and malaria. Cases of minor trauma, burns,



Following the joint naval-marine training operation JOS-11, a bull-dozer was operated by a member of Beachmaster Unit One to repair some two miles of road for the people of Palauan.



Some 150 Paluans received dental care through the civic action program which followed the joint naval-marine operations, JOS-11.



A frightened child received a medical examination conducted by a U.S. Seventh Fleet Navy doctor who participated in the civic action program through which over 1200 Paluans received medical/dental care.

and limited surgery were also seen with removal of sebaceous cysts, lipomas, and a benign breast tumor.

LT Thomas J. Marquardt, DC, USNR, of the 2nd Battalion, 4th Marines, provided dental treatment with the assistance of one dental technician. Over 300 extractions were performed, some associated with oral surgery, and one patient required a full mouth extraction with numerous nerve blocks.

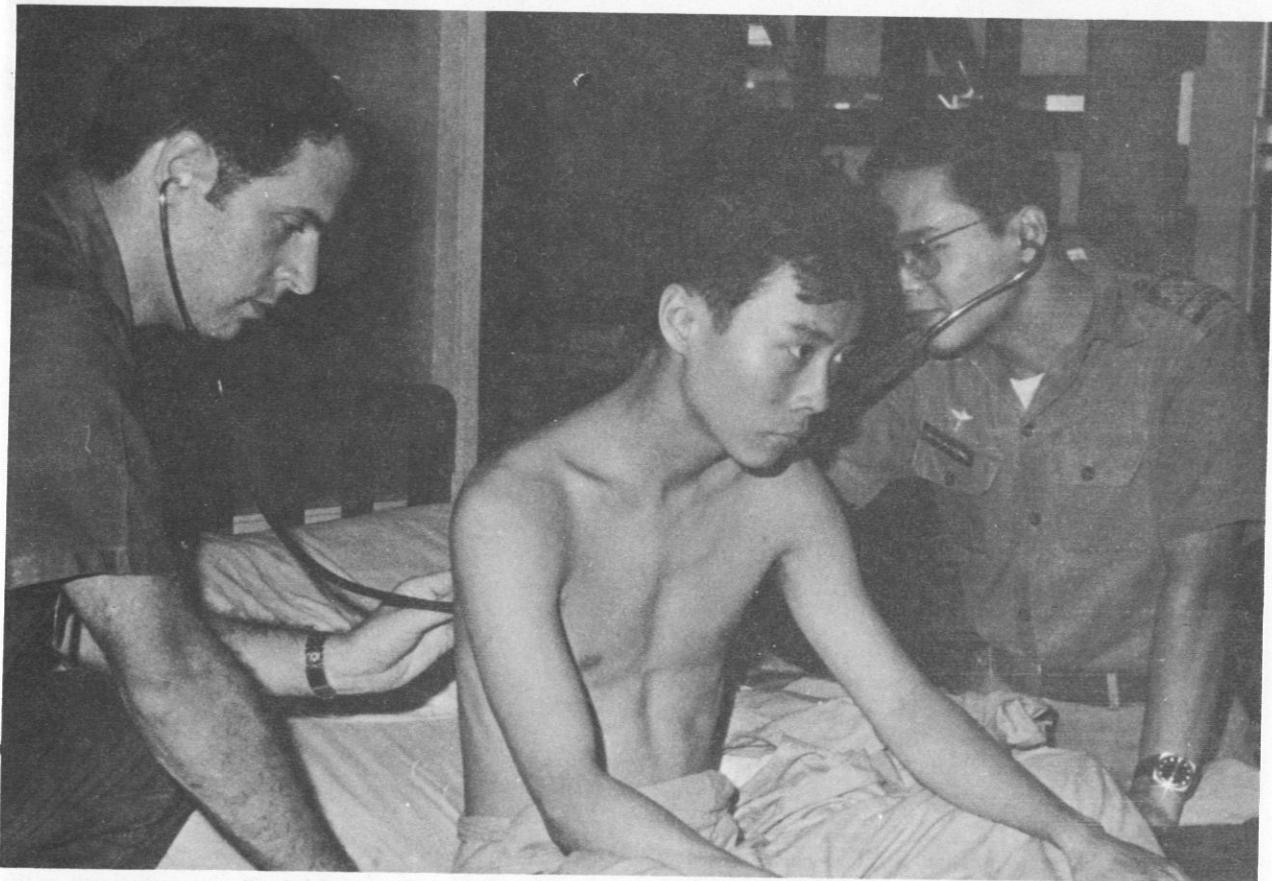
It was noted that lack of electricity and sanitation greatly hindered the utilization of much medical equipment, even if it were made available. Tuberculosis is widespread and goes undetected as a consequence of absent X-ray facilities and lack of drug therapy. Lack of shoes and paved roads, with deficient animal

segregation and inadequate sanitation, all contribute to the endless parasitic infestation encountered there. Medical supplies left behind included stethoscopes, minor surgical instruments, penicillin with syringes and needles to treat about 30 patients, malaria medications for 50 patients, tetracycline medication for 40 patients, cough medicine for 200 persons, large volumes of disinfectants, antiseptic solutions and dressing materials, Betadine, antibiotic and eye ointments.—Commander in Chief, U.S. Pacific Fleet, Public Affairs Office, Detachment Western Pacific, FPO San Francisco. Courtesy of CAPT Arthur W. Price, Jr., USN, Commander Amphibious Ready Group/Amphibious Squadron Eleven.

SAIGON NAVAL HOSPITAL

Paul Martin reported last summer from Saigon (U.S. Naval Advisory Group, MACV) that the Vietnamese Navy Medical Department (VNNMD) had grown over the past 15 years from a unit with only three physicians to an organization staffed by more than 70

officers and 1,100 enlisted men. U.S. Navy medical advisors who for several years have been conducting in-country, on-the-job training programs for Vietnamese Navy medical personnel have aided this substantial growth. An additional program whereby selected



LT Stephen J. Marglin, MC, USN (left), medical officer of U.S. Navy Medical Advisory Team, examines patient at the Saigon Naval Hospital with Dr. Vong of the Vietnamese Navy. (Photo by PH1 Ed Foote, USN)



Four Vietnamese Navy men graduated from the Camp Tien Sha Dispensary sixteen-week, OJT course on Saturday, 18 Sept 1971. Shown kneeling in the front row, these men represented the last class which was instructed by U.S. Navy personnel at the dispensary. Subsequently, Vietnamese doctors and corpsmen took over the instruction, with U.S. personnel as advisors. Standing, from left to right, are: LT T.D. Schuhrke, MC, USNR, Senior Medical Officer; HM2 W.J. Conrad, USN; SFFN J.D. Branson, USN; HMC J. Smith, USN; HM3 J.G. Olander, USN; HM1 E.A. Brown, USN; HM2 R.E. Thomack, USN; HM1 J.E. Kuttnauer, USN; CPO Bui Hien-Cong, VNN; HN R.A. Dickman, USN; LT(jg) Nguyen Dieu, VNN, medical officer in charge of the Vietnamese section of the dispensary; and LT J.M. LaPoint, MC, USNR; Assistant Medical Officer. (Photo by PO3 C.A. Hinton, USN)

Vietnamese doctors and corpsmen receive advanced training at naval hospitals in the U.S., has helped the VNNMD to keep pace with their own expanding Vietnamese Navy that has burgeoned in the past seven years from a force of 8,100 men and 44 ships to one of the world's ten largest navies, with 40,000 men and 1,500 ships.

A ten-man U.S. Navy Medical Advisory Team assigned to the Saigon Naval Hospital was playing a vital role in upgrading the medical services provided, and co-ordinating the procurement of supplies and equipment for Vietnamese medical units throughout the country. Considerable numbers of beds, mattresses and other equipment were transferred to the VNNMD when the former NSA Danang Naval Hospital was disestablished and when SANCTUARY departed.

LCDR Richard N. Prelosky, MSC, USN explained that Vietnamese Navy corpsmen get their basic medical

training in a 12-week course at the Vietnamese Military Medical School, a joint-service facility in Saigon. Suitable Vietnamese graduates, screened for aptitude and ability to use English, receive further schooling in the U.S., at the Saigon Naval Hospital or at in-country U.S. Navy medical facilities. There are numerous American-sponsored on-the-job-training (OJT) programs in Vietnam, such as that at Camp Tien Sha in Danang, or others at U.S. Navy dispensaries in Binh Thuy, Nha Be and Nam Can. Most Vietnamese corpsmen receive OJT lasting for four months at these facilities, learning appropriate medical supply procedures, personnel training techniques, medical safety, preventive medicine, personal hygiene and sanitation.

In addition to the Saigon facility, the VNNMD was said to be operating 11 dispensaries built throughout the country at other naval installations, and two medium landing ships equipped as mobile medical/dental facilities.

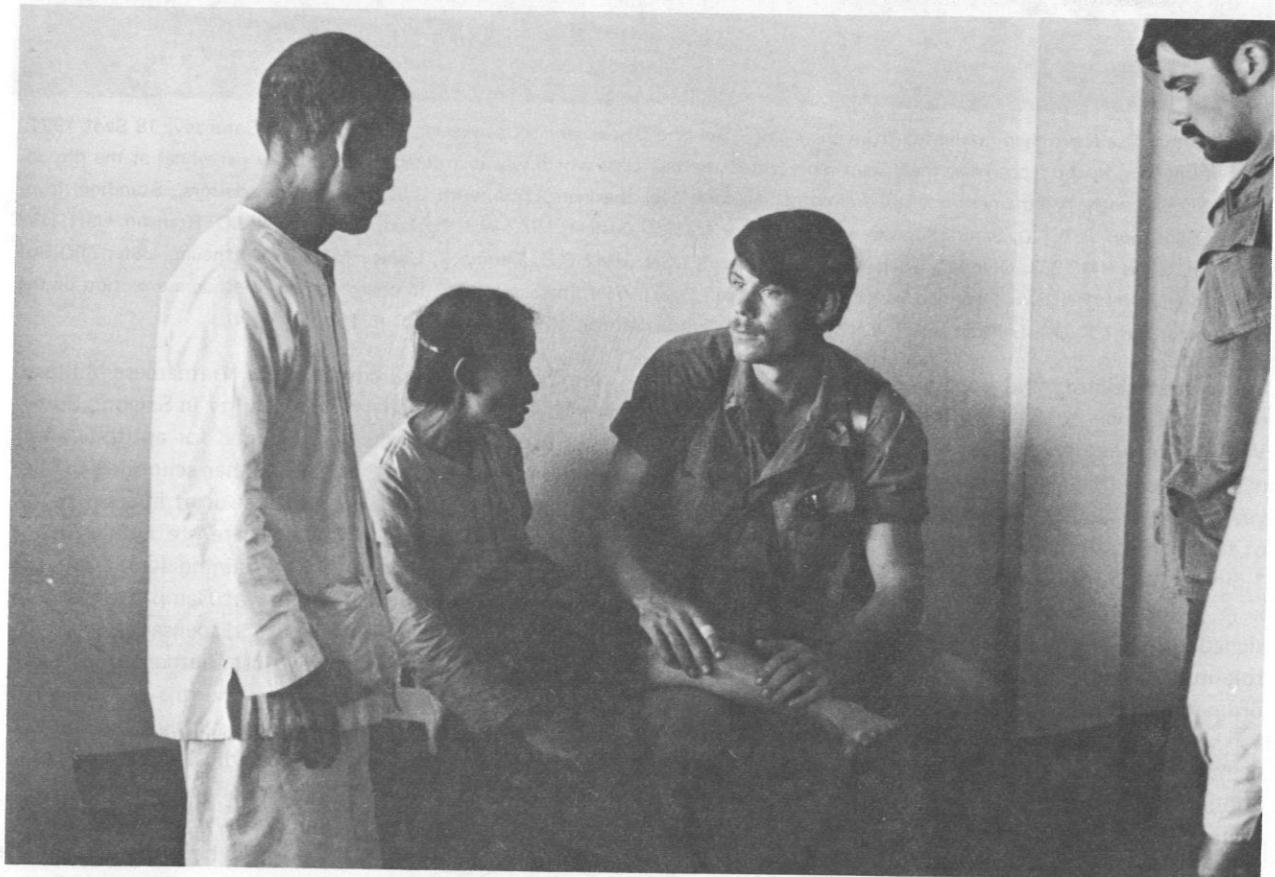
U.S. NAVAL SUPPORT FACILITY, DANANG

JO1 Dan Hansen, USN, reported in October 1971 that HM2 William J. Conrad, USN, was doing "just a little bit more." HM2 Conrad, an operating room technician assigned to the joint U.S.-Vietnamese dispensary at the U.S. Naval Support Facility in Danang spent his routine mornings working at surgical sick call, and also performed the duties of a general service corpsman.

Each week, however, he donated his time to a Medical Civic Action Program in Hoa Khanh Village, about 20 miles north of Danang. He treated mostly refugee

families there, in a small, government-sponsored dispensary run by two Vietnamese nurses. HM2 Conrad explained that he treated relatively minor ailments such as colds, skin lesions, cuts and bruises, referring more serious cases to the U.S. Overseas Medical Center in Danang, or the German Hospital Ship HELGOLAND moored in Danang.

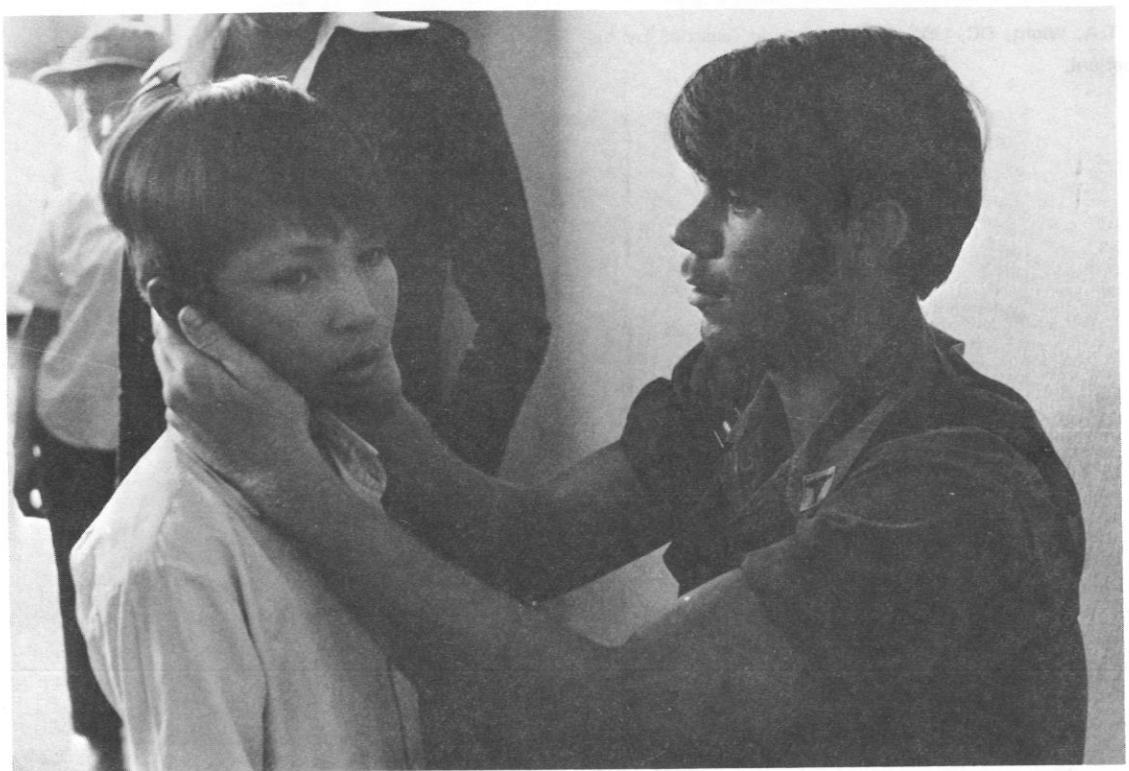
HM2 Conrad subsequently returned to the U.S. with plans to complete college following discharge, and hopefully to enter medical school at a later date. Photographs by PH1 R.L. Crabtree show HM2 Conrad at work.



HM2 Conrad examines patient at dispensary in Hoa Khanh Village.



Checking the eyes of a Vietnamese patient.



Considering a young lad who complained of a stiff neck.



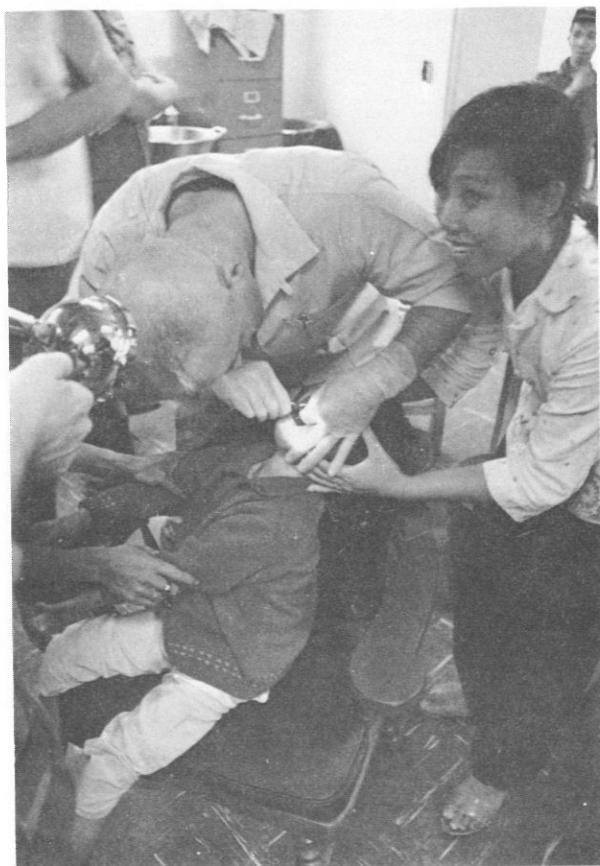
LCDR T.A. Wight, DC, USN (left) is sternly regarded by his little patient.

DENTAL CLINIC ON THE MOVE

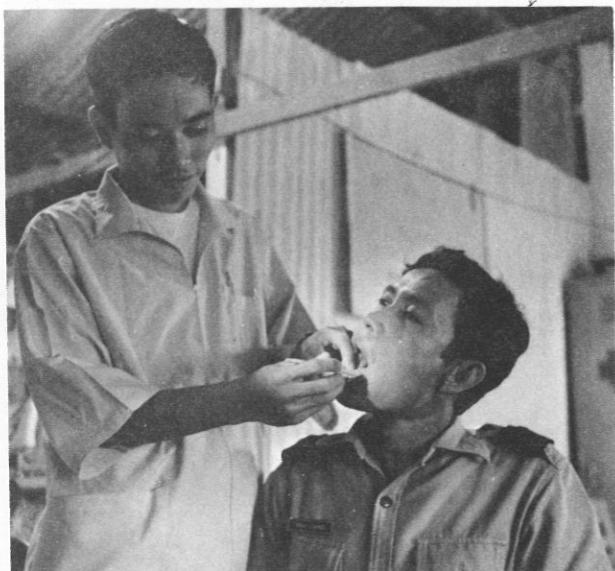
JO1 Dan Hansen, USN, reported in November 1971 that the Dental Clinic at U.S. Naval Support Facility, Danang, RVN, was making voluntary trips to outlying bases in Military Region One, attending to the dental needs of U.S. Naval advisors and Vietnamese as well. Headed by LCDR Thomas A. Wight, DC, USN, the five-man team treated 91 patients on a typical trip to a coastal village at Hoi An, south of Danang. The village was harboring known Viet Cong sympathizers. Vietnamese naval forces swept the village before the dental team entered. Two gunboats patrolled the adjacent waters and helicopter gun ships made periodic passes over the village during the clinic. The dental team appeared not to notice these distractions, completely absorbed in their work. Pictures by PH1 R.L. Crabtree reflect the intent concentration of a hard-working dental team.



Vietnamese Navy medical administration officer ENS Vu-Van-Dung records a youngster's complaint. He keeps official records of all patients examined and treated.



LCDR Wight hard at work.



LT(jg) Nguyen-Huu-Hoan, VNN, (left) was the first Vietnamese Navy dentist to work in Military Region One.



LCDR T.A. Wight, DC, USN and Dr. Nguyen-Huu-Hoan examine a patient at Coastal Group 14 headquarters in Hoi-An.



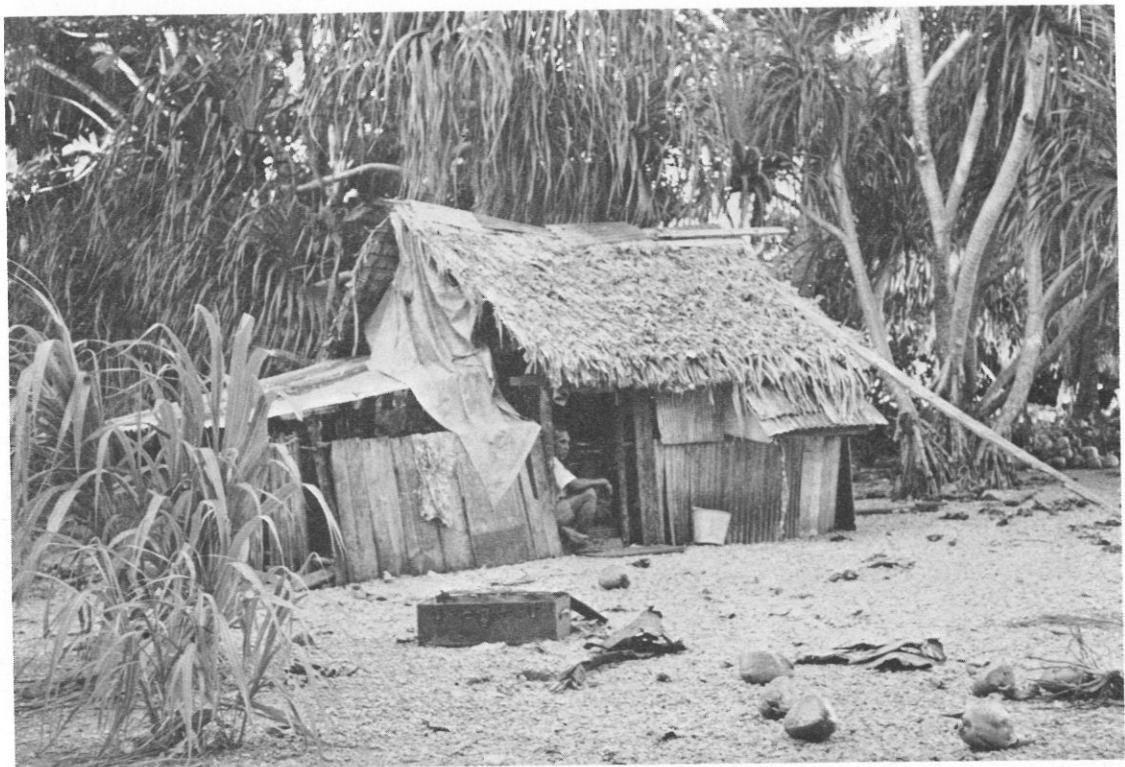
At the end of a productive day, the dental team trudges back to Coastal Group headquarters to catch a flight back to Danang. DT2 Dann W. Neilson, USN (far right) leads, followed by Hospitalman Clifton R. Gregory, USN.

HOUSE CALLS IN THE MARSHALL ISLANDS

From the PAO, Commander Naval Forces Marianas, comes an interesting report (with excellent photos by RM2 Patrick Purcell, USN) of LT Eddie L. Hoover, MC, USN, a member of the surgical staff at U.S. Naval Hospital Guam. Dr. Hoover volunteered for additional duty aboard the U.S.S. Grasp (ARS-24), a rescue and salvage vessel homeported in Guam. In November 1971 the ship toured the Marshall Islands in the Trust Territory of Pacific Islands (TTPI). The cruise covered some 5,000 miles in a period of 30 days, visiting 31 atolls and islands where the doctor treated approximately 25 patients per island. World War II locales such as Kwajalein, Wotje, Jaluit, and Majuro were revisited.

Dr. Hoover remarked that his initial reaction was one of utter frustration at being limited to doing what seemed like so little for the people he visited — however, his regret was soon offset by the attitude and esprit de corps of the islanders. His supplies were limited to those that could be carried ashore safely in a small craft. Some of the diseases seen were indigenous to the islands; some were related to dietary deficiencies, and, the lack of fluoridated water and sophisticated public health procedures.

Under the direction of the native health aides (TTPI-trained), the islanders were aware of their need for better health standards and were working toward such



There was an initial reaction of utter frustration.



Making a house call.



Dr. Hoover is shown standing outside one of the small coconut huts.



"Thank you"

a goal. On several islands they were planning to build concrete dispensaries, to replace the small coconut huts in which, Dr. Hoover had observed, he could not stand upright.

Wherever he could, Dr. Hoover tried to offer health aides a little more insight into specific diseases and left some medical supplies. The physician said, "I accepted their gifts of handicraft and fruit with much gratitude, but nothing could equal the teary-eyed smiles of the islanders as they said 'thank you,' the only words in English that many of them knew." It was clear that in doing what he regarded as "so little" by his standards, Dr. Hoover was making a tremendous contribution by the islanders' standards. ☺

Dental Radiographic Protection

By CDR William K. Bottomley, DC, USN;
Naval Graduate Dental School,
NNMC, Bethesda, Md.

Radiographs are a source of invaluable diagnostic information. To produce this essential radiographic evidence, it is necessary, however, to expose the patient to ionizing radiation. In the process, the operator may also be exposed to some degree. The ultimate objective in radiographic procedures is to obtain the maximum beneficial diagnostic yield with minimum risk to both patient and operator from biologically harmful ionizing radiation.¹⁻⁶ Every dental officer who supervises the utilization of X-ray equipment has the responsibility of striving to achieve this goal. This can be done by practicing the following recommendations in radiation hygiene and technique, made by the American Dental Association's Council on Dental Materials and Devices:⁷

1. Radiographic examinations should not be made periodically or be a standard part of every dental examination and should be used only if the information to be obtained will contribute to proper diagnosis or prevention of disease. The number of exposures should be the minimum necessary to obtain essential diagnostic information.

2. Use the fastest speed film available. Request film of a USASI (USA) Speed Group rating of "D" or faster.

3. Use only a collimated X-ray machine so that the circular beam striking the skin is not more than 2.75 inches in diameter. Further restriction of the beam can be obtained by rectangular collimation. If cone cutting occurs, practice proper aligning.

4. Make sure your X-ray machine contains filtration of 2 mm. of aluminum equivalent if operating at less than 70 kvp. and 2.5 mm. of aluminum equivalent if operating at 70 kvp. or above.

5. Use shielded open-end cones to reduce scatter radiation.

6. Use leaded aprons on children and all patients in the reproductive age range as an additional precaution to prevent radiation of the gonads.

7. Use film holders, bitetabs, or other methods to position film during exposure. The dentist or assistant should never hold a film in place for a patient.

8. Have periodic radiation protection surveys made of your office.

9. Properly expose the X-ray film. Overexposure with underdevelopment subjects the patient and office personnel to unnecessary radiation.

10. Follow manufacturer's instructions for processing X-ray film.

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MEDICAL CARE APPRAISAL

IN MILITARY HOSPITALS

By MAJ Forest W. Fudge, MSC, USAF; Plans and Operations Division,
Plans and Hospitalization Directorate; Office of
Surgeon General, USAF, Washington, D.C.

MAJ Fudge is a graduate of Class 32, Naval School of Health Care Administration (NSHCA), NNMC, Bethesda, Md. We are indebted to CDR R.L. White, MSC, USN, Instructor, BA 191, NSHCA, for bringing this fine paper to our attention.

Introduction

The appraisal of medical care quality has been receiving increasing emphasis during the past ten years. This intensified interest has been demonstrated by increased requirements by the Joint Commission on Accreditation of Hospitals (JCAH) (11:1) and Federal legislation requiring utilization review of medical care rendered to federally sponsored patients. (7:249)

Common Terms

Several terms are currently used to identify the process of medical care appraisal. Among those most commonly used are "medical appraisal," "evaluation" and "medical audit." (11:1) The term "medical audit," though not as descriptive as the other two terms, seems to have caught on and is the term most frequently used by hospitals. It is important, however, to differentiate between the terms "medical audit" and "medical care appraisal." Medical audit is defined as the evaluation of the quality of medical care rendered

as reflected in the medical records. (7:252) On the other hand, medical care appraisal includes the definition of medical audit as well as the evaluation of the structure of the institution providing the care and outcomes resulting from the episode of medical care in terms of patient health. (2:2) This differentiation of terms will be discussed more fully later in this paper.

The concepts and procedures of medical care appraisal have undergone rather extensive changes. The orthodox procedure of reviewing every fifth or tenth clinical record or a different disease class every month has given way to reviewing *all* the care given to *all* the patients. (6:220) The object of a medical audit is to determine the patterns of medical practice within the hospital. Patterns of practice cannot be identified through random selection of cases to be studied. Neither is it feasible to attempt the medical audit task by requiring the members of the Medical Audit Committee to review each and every record. The evolution of modern medical information systems has made it possible to delegate much of the view process to the computer.

Military Hospitals

Military hospitals have essentially borrowed medical audit procedures from their civilian counterparts. The number of medical audit "systems" in use in civilian

hospitals equals the number of variations of medical staff organization and types of hospitals. Thus, there is no standard system of medical care appraisal in military hospitals. These borrowed procedures with their many variations are not appropriate for military hospitals. All military hospitals have common characteristics in their organization and structure which are quite different from civilian hospitals. Among these are:

1. A governing body with absolute authority (the commanding officer and the sponsoring military service).
2. A full-time, salaried professional staff.
3. A limited (by law) and essentially non-paying clientele.
4. Access to larger amounts of technological services than the average civilian hospital.

These fundamental differences should be taken into consideration when designing or adapting any system or procedure. The civilian hospital is composed of two separate, though related, organizational entities — the hospital and the self-governing medical staff. This delineation does not exist in military hospitals. The medical staff is part of and governed by the hospital. This basic difference, properly utilized, can increase the overall effectiveness and efficiency of a medical care appraisal program. The organizational structure of military hospitals provides the important element which is often lacking in civilian hospitals — that of control.

Objective

The primary goal of any medical care appraisal system is to improve and maintain the quality of medical care rendered in the hospital. It can be considered a control device which:

1. Measures performance.
2. Compares performance with established standards.
3. Identifies deviations in performance from standards.
4. Provides management with feedback information to correct deviations at their source.

Thus, a medical care appraisal system can be structured as a management control system (see Figure 2), employing cybernetic principles as described by Norbert Weiner in his book titled *Cybernetics*. (9)

The purpose of this paper is to design a medical care appraisal system for military hospitals which incorporates the most recent concepts of medical care appraisal, makes full use of modern data handling techniques, and is structured as a management control system.

Approaches to Appraisal

Three major approaches to the evaluation of medical care quality have been identified by Donabedian. (2:2)

1. **Appraisal of Structure:** The evaluation of settings and instrumentalities available and used for the provision of care. It includes the physical aspects of the hospital plant facility and equipment, the characteristics of the administrative and professional staff organization, and the manner in which medical resources are used to provide the care.
2. **Assessment of Outcomes:** The evaluation of end results in terms of patient health and satisfaction.
3. **Assessment of Process:** The evaluation of the activities of physicians and other health professionals in the management of patients. The assessment of process is most often identified with the term "medical audit."

The identification of three major approaches to medical care appraisal does not mean that they are independent of each other, or that one must be selected in preference to another. On the contrary, all three approaches are interrelated. Appropriate structure increases the probability of good process which in turn increases the chances of favorable outcomes. Any attempt to assess the overall quality of care by appraising only one of these factors is no more logical than judging the quality of an apple by looking at only one side of the apple. Any effective appraisal system must encompass all three approaches. (2:4)

The Appraisal of Structure

The appraisal of structure deals primarily with those elements of the health care environment which are under the control and supervision of the Hospital Administrator. They include: (3:199)

1. The design, utility and safety of the hospital plant facility.
2. Adequate, modern and functioning medical equipment.
3. Administrative organization able to efficiently and effectively manage the resources used in providing medical care.
4. Medical staff organization capable of controlling the professional and administrative functions of the practicing medical staff.
5. Adequate numbers of trained hospital personnel.
6. Adequate financing.

The appraisal of structure is based on two major assumptions. (2:2) First, that better medical care is more likely to be provided by a qualified medical staff,

good facilities and good administration. Second, it is assumed that it is possible to identify what is "good" in terms of structure. This is an entirely subjective assessment. Good medical care cannot be equated with good structure — only the potential for good care is provided by good structure. On the other hand, any defect in the structure will eventually affect the quality of medical care.

The Appraisal of Outcomes

In its broadest sense, "outcome" means the ultimate, measurable end result of an episode of medical care. (2:31) In these terms, the appraisal of outcomes would, except for death occurring in the hospital or shortly after discharge, take years to assess. Such assessment belongs in the realm of the clinical researcher, not the clinical practitioner. According to Slee (6:215), no workable method of appraising the outcome or end results of medical care has ever been devised, nor is it likely that one will be developed. Thus, except for death occurring during treatment or shortly after discharge, the assessment of ultimate outcomes is beyond the scope of medical care appraisal. Donabedian (2:34), however, states that certain antecedents of outcome constitute focal end points which can be designated "*intermediate outcomes*" for purposes of evaluation. Some examples of these intermediate outcomes are:

1. Discharged from treatment, recovered.
2. Discharged from treatment, unimproved.
3. Discharged from treatment with disability.
4. Discharged from treatment against medical advice.
5. Complications during hospitalization.
6. Infection incurred during hospitalization.
7. Necessary laboratory work accomplished.
8. Follow-up of abnormal laboratory results.

According to Donabedian, there are several distinct advantages to monitoring outcomes. Outcomes have a considerable and seldom questioned degree of validity as a measure of the purely technical aspects of patient management. Measurement of outcomes has an integrative function since outcomes tend to reflect the performance of the entire health team (nurses, laboratory technicians, physical therapists, etc.) as well as the attending physician. Outcomes often stimulate the important question, why? The pursuit of the answer to this question may lead to previously hidden defects in the medical care process or the administrative systems of the hospital.

Since limited or intermediate outcomes measure only the technical aspects of patient management, they can be identified, quantified, tabulated and displayed by

someone other than the busy physician. The medical staff should set the standards for outcomes which are then used by medical records department personnel to identify medical records that should be further evaluated by a physician. Thus the physician on the Medical Audit Committee can devote his time to those cases which most need his attention and evaluative skills.

The Appraisal of Process

The appraisal of process is traditionally known as medical audit. It consists of evaluating the activities of the attending physician and other medical personnel in the management of patients. Professional performance, as documented in the medical record, is compared with standards of performance established or adopted by the medical staff, and a professional judgment is made as to whether performance meets the minimum standards. The establishment of standards and the professional evaluation of the medical care process is beyond the scope of this paper. An excellent work on the professional aspects of process appraisal can be found in *Volume II: Medical Care Appraisal* (2), one of a series of American Public Health Association publications on medical care administration. This paper will be limited to discussing the mechanics of medical care process appraisal.

The time-honored approach to medical auditing has been for the Medical Audit Committee to call for a random selection of medical records for the period being audited or for all the records of a particular disease entity. Committee members then proceed to go through each record, attempting to make a professional assessment of the care rendered. This orthodox approach is full of pitfalls and leaves much to be desired. (10:229) More often than not, it amounts to aimless wandering through mountains of records. Dr. Vergil Slee (8:2) has equated the traditional medical audit procedure with a pathologist attempting to perform an autopsy with a table, chair, microscope and 10,000 microscopic sections. Obviously, the pathologist would never know if he was getting an accurate picture of the deceased. Neither will a Medical Audit Committee be able to assess the quality of medical care practiced in a hospital by starting with individual medical records. The auditing process should be turned around so that the Medical Audit Committee gets the total picture of medical practice and then moves into the details.

Requisites for Effective Program

There are basically five requisites for an effective medical audit program: (12:5)

1. A clear definition of medical audit and its purposes.
2. Use of *progressive magnification* to determine the patterns of medical practice.
3. A modern medical information system.
4. A medical staff trained in audit procedures.
5. A streamlined committee structure.

1— Medical audit has been defined earlier in this paper as the evaluation of the quality of medical care as reflected in the medical records. In the past, medical audit has been viewed with fear and suspicion. (6:213) It has at times been considered a scheme to "catch the rascals" (6:217), a purely administrative review of clinical records or a form of education. The sole purpose of a medical audit is to identify the *patterns of practice* in the hospital, compare these patterns with standards established or adopted by the medical staff, and to report the results of this comparison to the Executive Committee. The Medical Audit Committee is a fact-finding body, not a disciplinary body. Corrective action, when needed, is a function of the Executive Committee. Corrective action is usually in the form of a continuing education program administered and monitored by the Executive Committee.

2— The use of progressive magnification requires that the important aspects of medical care as reflected in the medical records be reduced to statistical summaries to provide an overall view of the total care rendered in the hospital. These statistical summaries will provide clues as to the aspects of practice which require additional investigation. As the field of observation narrows, the evaluator will review those clinical records which provide the basis for the unfavorable statistics. Progressive magnification will reveal patterns of practice and save the evaluator time.

3— The use of progressive magnification in medical care appraisal must be supported by a modern medical information system. The role of the medical records department must be changed from one of record storage to that of *data retrieval*. The large amounts of data to be collected, summarized and displayed requires the use of modern data handling techniques. Medical records personnel must be trained in modern information handling.

4— The medical staff must be trained in the procedures of establishing standards of practice and in the use of statistical and coded information. Only when the medical staff, as well as the medical records department, is prepared, can the Medical Audit Committee perform its function with maximum effectiveness and minimum effort.

5— In the past, each new task in the hospital has been handled by the formation of a new committee.

This has resulted in duplication of effort and loss of efficiency. For example, the Tissue, Medical Records and Infection Committees all perform audit functions. Each of these committees meets at different times. They may or may not review the same records. There is no reason why these committees could not be combined into a single committee. The Joint Commission on Accreditation of Hospitals recognized this problem in its Bulletin No. 40 issued in December, 1965. This bulletin abolished the requirement for nine specific standing committees and permitted the medical staff to organize in any manner deemed most appropriate for effective patient management. The functions of these nine committees, however, must be accomplished and documented. One hospital which has taken advantage of this more lenient approach is the Moore Memorial Hospital, Pinehurst, North Carolina. (5:88) This hospital separated its staff functions into two distinct groups: (a) administrative or staff housekeeping functions, and (b) patient care evaluation functions. A single Medical Audit Committee incorporated the medical records, tissue, utilization, infections and pharmacy and therapeutic committees. This restructuring of the committees has reduced committee membership from 37 to 16. This streamlined committee structure, combined with a modern medical information system has increased both the effectiveness and efficiency of the medical audit process.

Establishing an Audit Procedure

Once the requisites for an effective medical audit program have been satisfied, the audit procedure can be formulated. Establishing an audit procedure can be separated into five distinct steps: (12:4)

1. Appoint Medical Audit Committee(s).
2. Adopt criteria (standards).
3. Delegate the task of providing information, according to the established criteria, to the medical record department.
4. Review the care given.
5. Record and report all findings.

1— Larger hospitals should establish audit committees for each department. Clinical departments exist because they are the most efficient means of carrying out the medical staff responsibilities and overseeing the quality of medical care. Establishing separate audit committees for each clinical department also builds on clinical interests and trains more of the staff in auditing procedures. These departmental audit committees should be responsible to a main audit committee which consolidates the findings of the departmental committees and forwards a consolidated report to the Executive Committee. A single audit

committee for all the departments would be more appropriate for smaller hospitals.

2—The adoption of standards of excellence expected in the hospital requires the establishment of two different types of standards. The first are those which are used by the medical records department to prepare the statistical analysis of the medical care practiced in the hospital. These are rather easy to develop since they involve the purely technical aspects of patient management. They may be considered "go or no-go" standards. A hospital-incurred infection did, or did not, occur. Tissue was or was not diseased. The development of clinical practice standards, however, is more difficult and time consuming. Medical science determines what the standards of practice should be. The medical staff must decide which of these standards will be adopted for their hospital. This decision involves the review of current literature, consulting with experts, and discussing among themselves what to consider as the "best" care. The adopted standards should be expressed so that they apply to *groups* of patients in order to be useful in determining patterns of practice for all the patients. It must be emphasized, however, that the individual patient's needs can override the expected pattern.

3—The medical record department must be equipped and trained to provide the medical staff with information according to the established criteria. The data should be presented in a form which gives progressive magnification: first, the gross statistics; then more

detailed statistics which can lead to individual cases needing further study.

4—In reviewing the care given, the Medical Audit Committee uses the information provided by the medical record department. Often the statistics will tell enough to assure the committee that the care meets the adopted standards. If so, they proceed to another aspect of care. If not, the individual medical records must be reviewed to ascertain the quality of medical care. The Medical Audit Committee may, if it so desires, review a random selection of records which were not selected for review by statistical means to ensure that the statistical analysis has been properly performed.

5—The final step in the audit procedure is to record and report all findings. These findings provide the department chiefs, the Executive Committee, and the Chief of Staff suitable data on which to base corrective action. Corrective action is normally channeled through the continuing education programs conducted by the medical staff, administered by the Executive Committee.

Cybernetic Control System

Medical audit can be considered as a control process in which performance is measured and compared with established standards of performance. Any significant deviation in performance is analyzed. This analysis provides management with information needed to correct the deviations in performance at their source.

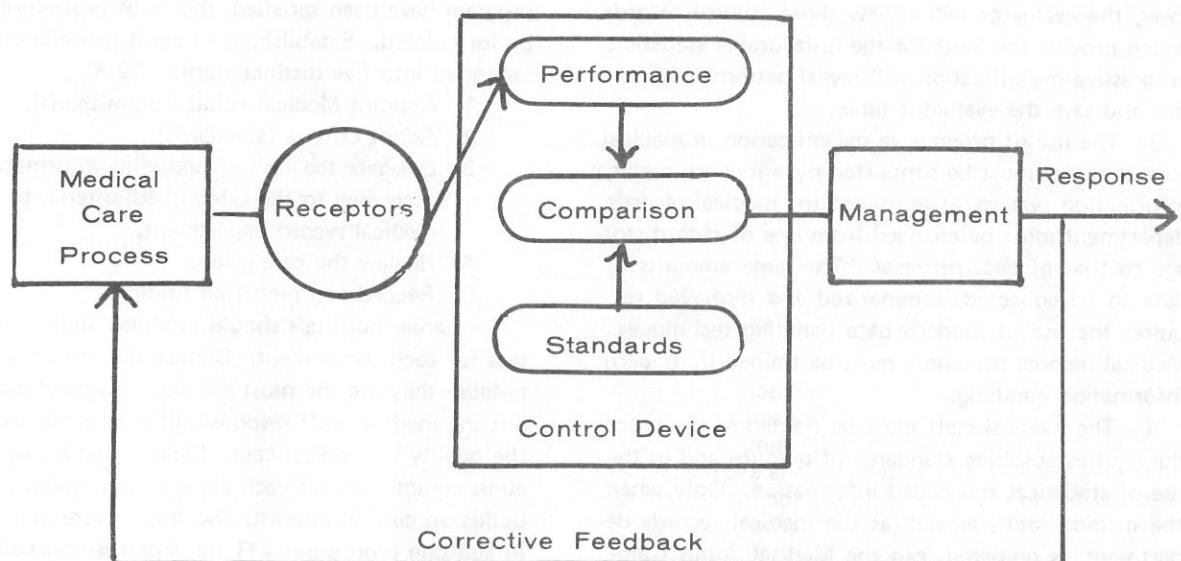


Figure 1. Basic Cybernetic Control Model

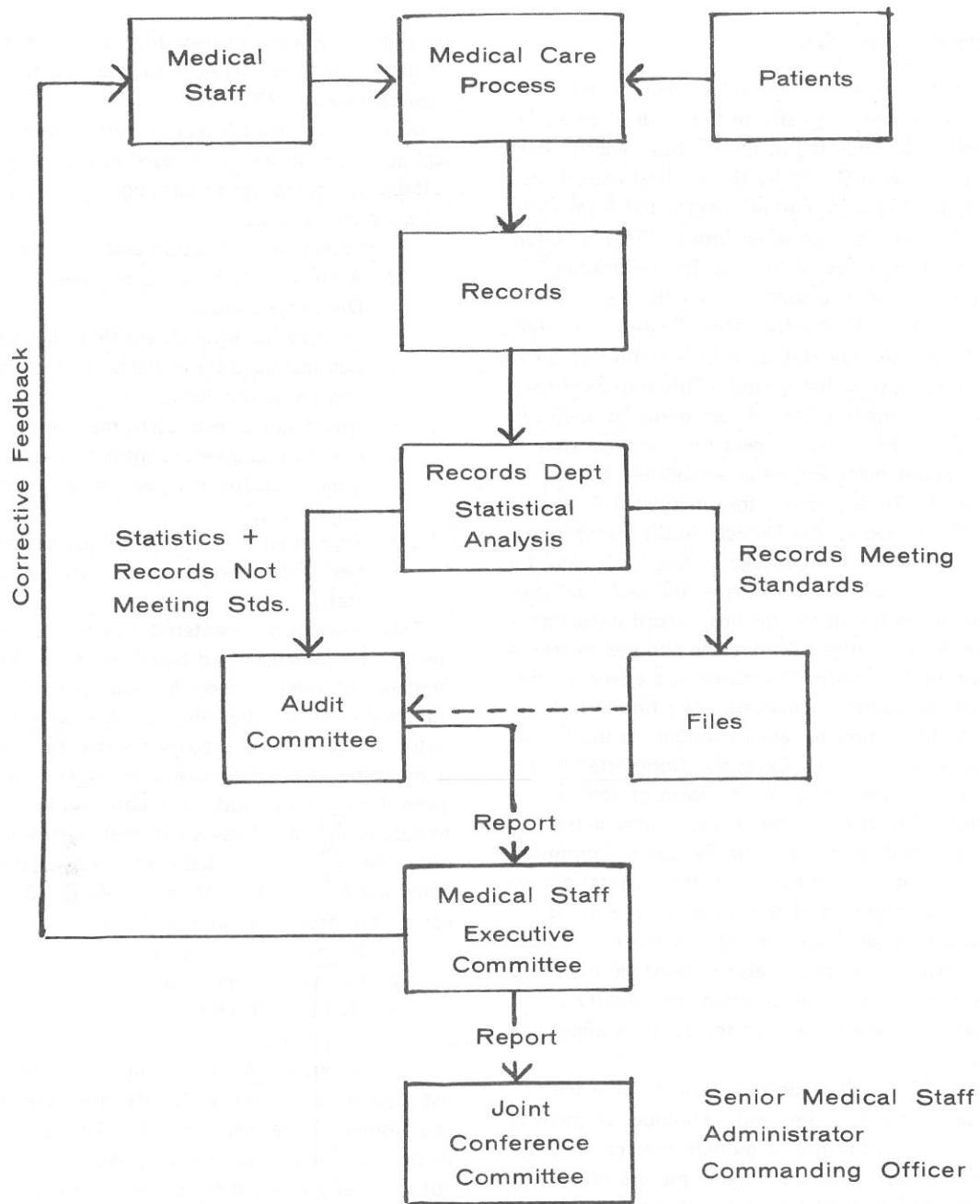


Figure 2. Medical Audit As A Control Process

The thermostat is frequently used to describe the mechanics of such a control system. The setting of the thermostat determines the "standard" temperature to be maintained. A thermometer which is a component part of the thermostat acts as a receptor for the actual ambient temperature (performance). When the thermometer detects a temperature lower than that established by the setting of the thermostat, a signal causes the heater to turn on and remain on until the thermometer determines that the ambient temperature is within standard limits, at which time another signal is

sent to turn the heater off. Thus, the essential elements of a control system are a receptor, a control apparatus, an effector, and feedback.

Weiner (9) describes a generalized model for a control system in his book, *Cybernetics*. Figure 1 illustrates such a model.

The medical audit process fits well within the framework of a cybernetic control system. Figure 2 illustrates the entire medical audit process as described in the earlier sections of this paper, structured as a management control system.

Management Control System

The results of the interaction between the medical staff and the patients constitute the medical care process which is documented in the medical record. Each medical record is analyzed by the medical records department; specific information is extracted from each record and coded for computer input. (This function is discussed in more detail later under the heading, "Medical Information Systems.") At the end of the audit period, the coded information is used to analyze, summarize and display statistical information on all the cases handled during that period. This statistical data can be used by medical records personnel to identify those records which do not meet the technical standards of patient management as established by the medical staff. These records are retrieved from the files and forwarded to the Medical Audit Committee, together with the entire package of statistical data, for review. All the records which meet the technical standards remain on file in the medical record department unless the Medical Audit Committee chooses to review a selection of the "normal" records as a check on the validity of the statistical analysis. The findings of the Medical Audit Committee are forwarded to the Executive Committee. It is the Executive Committee that must take corrective action in the form of education of the medical staff or, possibly disciplinary action against individual members. The Executive Committee must keep the governing body and the hospital administration fully informed of the results of the medical audit and action taken to remedy deficiencies, if any. The Executive Committee is also responsible for bringing defects in structure which affect the quality of patient care to the attention of the Joint Conference Committee.

In summary, a well organized Audit Committee, fully versed in the purposes and techniques of medical audit, and making full use of modern medical information systems, can obtain a complete picture of the patterns of practice in their hospital without resorting to time-consuming and often futile review of medical records. In some cases, however, there is no substitute for actual review of the individual medical record. An efficient and effective audit system permits the committee to concentrate on those records which provide evidence of unfavorable trends of practice.

Medical Information Systems

If all the care given to all the patients is to be appraised, the Medical Audit Committee needs a great amount of assistance. The introduction of mechanical data handling systems and computers have made it

possible to process, display and summarize large masses of data which are pertinent to assessing the quality of medical care. (2:22)

Most of the medical record information used in medical auditing can be compressed into a concise abstract suitable for computer processing. This information includes such items as:

1. Patient identification and vital statistics data.
2. Admission and discharge dates.
3. Discharge status.
4. Primary, additional and final diagnoses.
5. Surgical procedures performed, anesthesia used and tissue removed.
6. Investigative tests performed and their results.
7. Patient management information such as drugs given, transfusions given, other therapy received, etc.
8. Any other information which can be quantified and is considered desirable by the medical staff.

This information is entered into the computer by means of a punched card based on the coded abstract prepared by medical records department personnel. At monthly intervals, the information stored in the computer can be used to prepare a statistical summary (commonly referred to as a data display) of the care given during the period. The data can be manipulated to supply listings of cases and their attributes so that each line provides a coded description of the characteristics and management of each case. (2:23) The cases can be arranged in a variety of ways:

1. By diagnostic category.
2. By type of operation.
3. By hospital service.
4. By physician.

The computer can be programmed to identify and list separately all cases which deviate from standards established by the medical staff. Also, all the records involving certain final or intermediate outcomes can be automatically selected for review. Examples of some of these are:

1. All cases resulting in death.
2. All cases involving hospital-incurred infections.
3. All operative complications.
4. Unusually short or long periods of hospitalization.
5. Cases in which certain routine examinations were not performed.
6. Cases falling above or below established percentiles of a frequency distribution for any factor selected for study.

Such comprehensive medical information is available by contract from several non-profit organizations.

While most military hospitals have access to government-owned computers, there are definite advantages to using non-military services. Military hospitals would have access to comparative statistics based on more than ten million discharges per year. The cost of these contract services is relatively low — 30 to 40 cents per discharge. The use of a contract system would insure a standard system for all the armed forces, permitting a valid comparison of statistics. Analysis of alternatives of obtaining a medical information system by contract, or developing a separate system for each of

the three military services, is beyond the scope of this paper.

An Integrated Appraisal System

The application of management control techniques was briefly considered under *Appraisal of Process*. As stated previously, the three approaches to appraisal are interrelated and must be incorporated into any effective appraisal system. Figure 3 represents a model of a medical care appraisal system which incorporates the

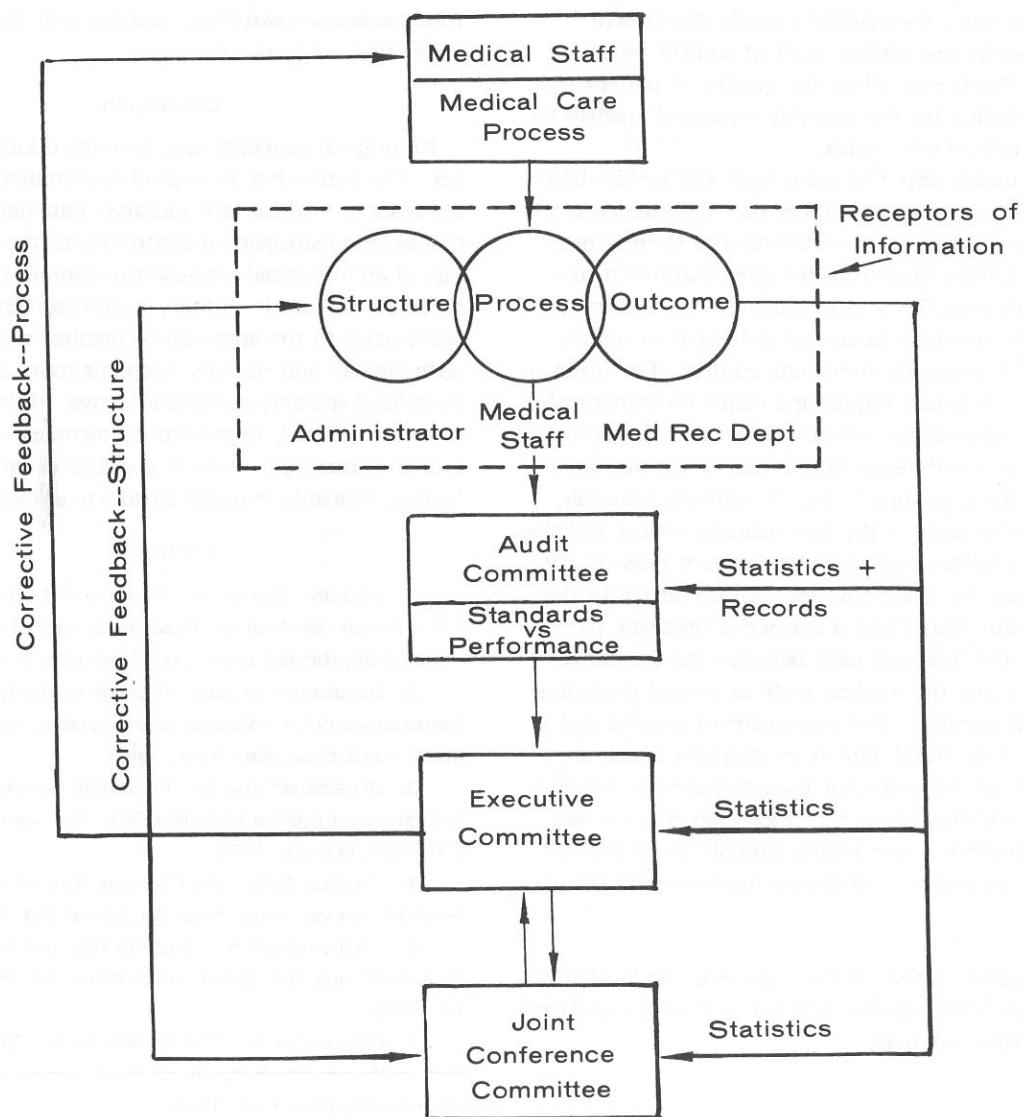


Figure 3. An Integrated Appraisal System

three approaches to appraisal, structured as a management control system.

Structure

Each of the three approaches to appraisal — structure, process and outcomes, monitored by the administrator, the medical staff and the medical records department respectively, are shown in the dotted rectangle as receptors of information generated by the medical care process. As indicated by the overlapping circles, some interchange of information occurs at the receptor level concerning limited or short-range problems. The medical staff can communicate difficulties with inoperative equipment or staffing problems to the administrator without waiting for the Medical Audit Committee to meet. Likewise, the medical records department should apprise the medical staff of sudden trends or practices which may affect the quality of patient care, without waiting for the monthly statistical analysis to "prove" unfavorable trends.

The structure appraisal portion of this system contains a two-way path of information flow between the administrator and the Joint Conference Committee. The information flow from the administrator to the Joint Conference Committee illustrates the action taken by the administrator to correct defects in structure which are beyond his immediate control. For instance, a defect in structure requiring a major investment of financial resources for correction can be effected only by the Joint Conference Committee which has direct access to the governing body. In military hospitals, the governing body is the commanding officer and the sponsoring military service. The upward flow of information from the Joint Conference Committee to the administrator constitutes a corrective feedback path similar to the feedback path between the Executive Committee and the medical staff to correct deviations in medical practice. The assessment of process and outcomes may reveal defects in structure which are clearly within the ability of the administrator to correct using existing resources. Examples of such deficiencies would be poor supply support, poor maintenance of equipment, and sloppy housekeeping practices.

Process

The process portion of this system is identical with the medical audit system depicted in Figure 2 and need not be further discussed.

Outcomes

The medical records department, as monitor of outcomes, provides statistical data and questionable medical records to the Medical Audit Committee as

described earlier. In addition, the statistical data is also provided to the Executive and Joint Conference Committees as an additional control over the overall appraisal process.

Robert Anthony (1:16) differentiates control systems into two main types: Management control and operational control. Management control is defined as the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives. Operational control is the process of assuring that specific tasks are carried out effectively and efficiently. As related to the integrated medical care appraisal model, the Joint Conference Committee exercises management control. The Executive Committee and the administrator exercise operational control over the factors under their cognizance.

Conclusion

No original concepts have been introduced in this paper. The author has attempted to combine the essential elements of medical care appraisal, data handling techniques, and management control principles into the design of an integrated medical care appraisal system appropriate for use in military hospitals. The traditional approaches to the appraisal of medical care quality in both civilian and military hospitals have, at best, been superficial and only partially effective. Military hospitals have the control, organization, technical skills, and resources necessary to make an appraisal program highly effective. The only thing left to do is to use what we have.

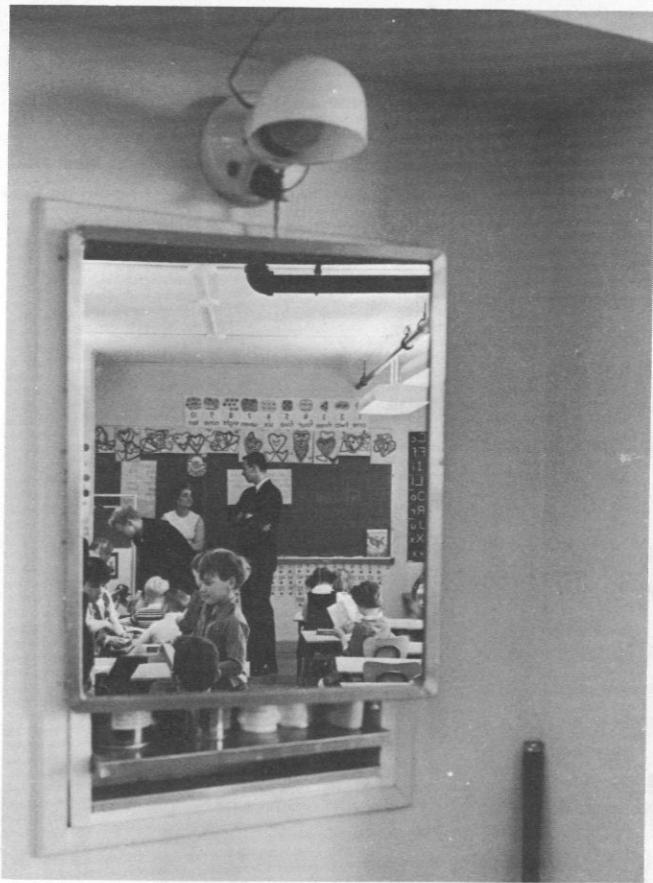
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At the 78th Annual Meeting of the Association of Military Surgeons of the United States 5-8 December 1971, Senior Dental Surgeon Henry J. Van Hassel, U.S. Public Health Service, received the Carl A. Schlack Award for his pioneer work in developing and conducting clinical studies in pulpal physiology, particularly *in vivo* studies of the microcirculation of the pulp. The Award honors the memory of the late CAPT Carl A. Schlack, DC, USN (Ret.), whose accomplishments initiated and firmly established dental research in the U.S. Navy.✿



No. 1

National Children's Dental Health Week in 1972 is being observed 6-12 Feb. Anticipating this observance, the following notice is taken of similar celebrations which were brought to our attention in 1971.

Children from the NAS Pensacola Nursery and Kindergarten visited "Miss Baker," famous space monkey at the Naval Aerospace Medical Research Laboratory, Pensacola, Fla., with Navy Dental Corps LCDR Thomas Sugg, and Navy Dental Technician Third Class James R. Lassiter (See Photo No. 2). Before they saw Miss Baker the children received new tooth brushes and instruction in their use. LCDR Sugg also visited other Pensacola schools in observance of National Children's Dental Health Week.—PAO, Nav Aerospace Med Center, Pensacola, Fla.

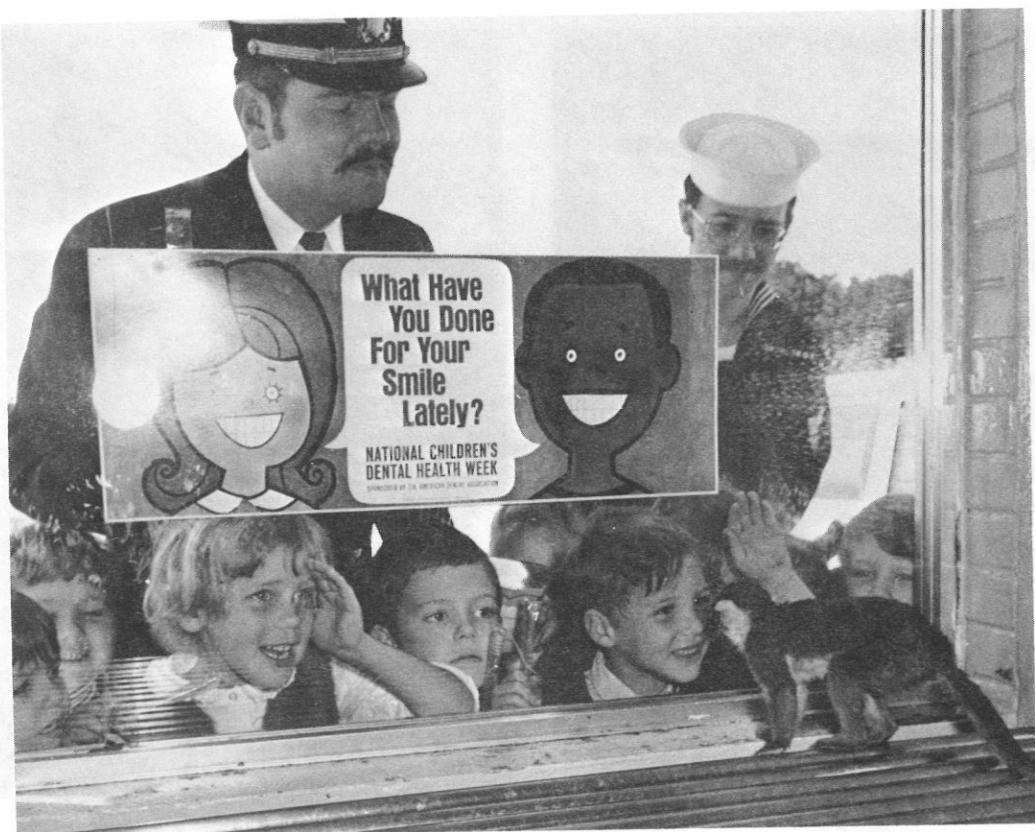
In Yokosuka, Japan, the U.S. Naval Dental Clinic sponsored a program for preventive dentistry treatment of over 2,000 dependent children. Mrs. Gail Boylan, RN, school nurse for Department of Defense Schools in Yokohama, Japan, aided Navy dentists in organizing and scheduling the treatments. She is shown in Photo

Children's Dental Health Week

No. 3 selecting posters for the annual campaign. Miss Mariana Duarte, RN, school nurse at Yokosuka Naval Base, voluntarily aided Navy dentists in the program and is seen in Photo No. 4 preparing a treatment schedule for 1,000 dependent school children.—PAO, Commander U.S. Naval Forces, Japan, FPO Seattle 98762.

Each year the U.S. Naval Academy Dental Department at the U.S. Naval Academy in Annapolis, Md., sponsors National Children's Dental Health Week at the Naval Academy Primary School. The school consists of approximately 275 pupils in preschool, kindergarten, first, second, and third grades.

In early Summer all Navy dependent children in the Annapolis area are given the opportunity to receive plaque control instructions, examinations, prophylaxis, and stannous fluoride applications at the Naval Academy Dental Department. Because of the success of this well-established Summer program the primary emphasis during Dental Health Week was placed on explaining dental disease and its causes to the children, providing answers to any questions they had about



No. 2



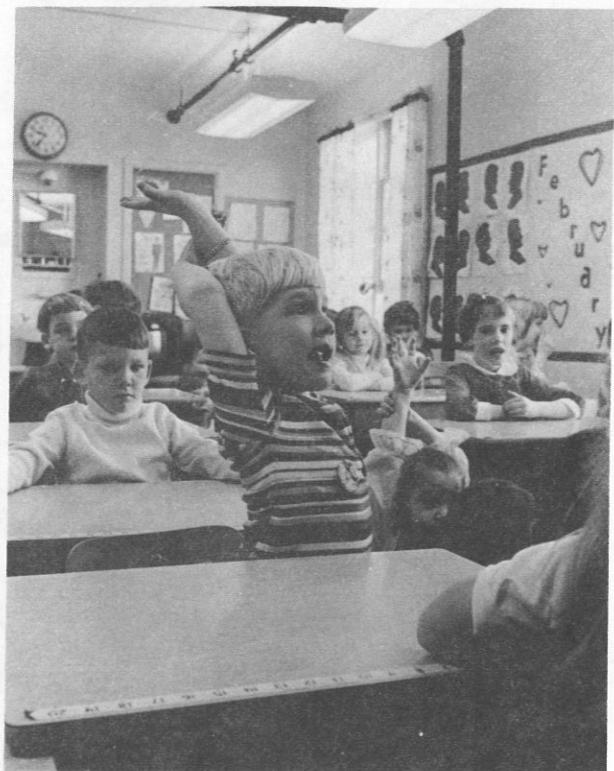
No. 3



No. 4



No. 5



No. 6



No. 7

their teeth. Prior to Dental Health Week the teachers from Primary School were taken through the Naval Academy Plaque Control Orientation Center for a motivational session similar to that which the Midshipmen receive. It was felt that the knowledge and understanding gained here would aid the teachers in conducting their own Dental Health Week Programs.

On the Friday preceding Dental Health Week LT W.W. Sullivan, DC, USN and DN B. DuRand visited the Primary School. Various dental health education materials for the classroom as well as several large posters for the school bulletin boards, were distributed.

DN M.R. Wallace also went to the school and showed the film "Swab Your Choppers" to all the classes. This film was well received and prompted many excellent questions during the classroom sessions.

On another day, classroom lectures were given by Dr. Sullivan, DN Wallace and DN DuRand. In addition to



No. 8

explaining basics in bacterial plaque and dental disease, an effective method of removing plaque and instructions in the use of disclosing tablets were provided. At the end of each lecture the class was encouraged to ask questions. The questions were numerous, covering subjects such as extractions of deciduous teeth, fluoride, reimplanting of avulsed teeth, orthodontic treatment, and decay and diet. If noise level or hand waving are any measure of enthusiasm, the program was a 100% success with the children.

Following the question period each child was given a dental care kit containing: fluoridated tooth paste and a child-size toothbrush; a sealed envelope containing disclosing tablets; a note to parents explaining their use; and several small pamphlets on dental health. As photographs No. 1, and No. 5 through No. 9 suggest, a good and constructive time was had by all.—Dental Department, U.S. Naval Academy, Annapolis, Md. ☺



No. 9



CAPT S.C. Pflag, MSC, USN (center) and Mrs. Pflag (left) receive plaque from VADM G.M. Davis, Surgeon General (right).



VADM G.M. Davis, Surgeon General (left), presents the Phillip Hench Award to CDR George E. Ehrlich, MC, USNR.



AMSUS

Several distinguished members of the Navy Medical Department were honored at the 78th Annual Meeting of the Association of Military Surgeons of the United States ("The Medical Society of the Federal Agencies"), held 5 through 8 Dec 1971 at the Washington Hilton Hotel, Washington, D.C.

The Andrew Craigie Award which honors the memory of the first Apothecary General of the military forces of the U.S., went to CAPT Solomon C. Pflag, MSC, USN; Chief, Field Branch, BUMED, Philadelphia, Pa. The plaque and honorarium sponsored by Lederle Laboratories Division of American Cyanamid Co., were awarded for exceptional leadership in attaining a high level of excellence in the quality of pharmaceuticals supplied to the armed forces between July 1965 and 1970. Procurement techniques developed by CAPT Pflag were adopted by the Food and Drug Administration, and at state and national levels.

VADM George M. Davis, MC, USN, Surgeon General, was honored with the Founder's Medal Award for his outstanding contributions to military medicine and for meritorious service to the Association.

The Phillip Hench Award went to CDR George E. Ehrlich, MC, USNR for his outstanding role as a teacher in the field of rheumatology as well as his contribution towards a better understanding of the natural history of rheumatoid arthritis. The Phillip Hench Award was established in 1966 in cooperation with Merck Sharp & Dohme, and honors Dr. Hench, a former member of AMSUS, who first used cortisone in the treatment of arthritis. CDR Ehrlich is Director of the Section on Rheumatology at Albert Einstein Medical Center and Moss Rehabilitation Hospital; Attending Physician in Medicine at Temple Univ. Hospital; and Rheumatology Consultant at Naval Hospital, Philadelphia, Pa.

AMSUS President M.J. Musser, M.D., (left), Chief Medical Director, VA, presents The Founder's Medal and scroll to VADM G.M. Davis, Surgeon General (right) at the Annual Banquet.

AWARDS

The Margetis Award honoring the memory of former Army Dental Corps officer COL Peter Margetis, went to CAPT Henry J. Sazima, DC, USN; Chief, Dental Service, Naval Hospital Philadelphia, Pa. This award was established in 1970 by the Association and Astra Pharmaceutical Products, Inc. CAPT Sazima was cited for his significant contributions in the field of dentistry and in accomplishment of the Navy's mission in Vietnam.

The Stitt Award, which honors the memory of RADM E.R. Stitt, a former Navy Surgeon General, was reestablished in 1970 by Merrell-National Laboratories Division of Richardson-Merrell, Inc. CAPT Donald C. Kent, MC, USN (Ret.), Medical Director, American Thoracic Society and National Tuberculosis & Respiratory Diseases Assoc., N.Y.C., N.Y., was the chosen recipient of The Stitt Award. CAPT Kent was cited for his outstanding contributions to medical research programs in preventive and tropical medicine, as a former Commanding Officer of Naval Medical Research Unit No. 3 in Cairo, Egypt, and for accomplishments in the study and control of tuberculosis in the U.S. Navy.

The Henry S. Wellcome Medal and Prize went to LCDR Richard P. Wenzel, MC, USNR of the Virology Division, Naval Medical Field Research Laboratory, Camp Lejeune, N.C. Dr. Wenzel's prize-winning essay was entitled: "Acute Respiratory Disease: Clinical and Epidemiologic Observations of Military Trainees." It was published in the December issue of *MILITARY MEDICINE* and is well worth reading. (*Excellent photos were taken by HM2 E. Garner, USN and obtained through the courtesy of HM1 Donald R. Poorman, USN, Photography Division of the Medical Graphic Arts Dept., Naval Medical School, NNMC, Bethesda, Md.*)



VADM G.M. Davis, Surgeon General (left), presents The Margetis Award to CAPT Henry J. Sazima, DC, USN.



VADM G.M. Davis, Surgeon General (right), presents The Stitt Award to CAPT D.C. Kent, MC, USN (Ret.).



VADM G.M. Davis, Surgeon General (left) presents the Henry S. Wellcome Prize to LCDR R.P. Wenzel, MC, USNR (right). Mrs. Wenzel (center) is obviously overwhelmed.

"KEEP THEM FLYING SAFELY"

The U. S. Navy Special Board of Flight Surgeons

By CAPT M.D. Courtney, MC, USN,
Commanding Officer, Naval Aerospace Medical Institute,
Naval Aerospace Medical Center, Pensacola, Fla.
(Photos by courtesy of J. Dowd, PAO, NAMC, Pensacola)

The text of the following paper was presented by CAPT Courtney at the AGARD (Advisory Group for Aerospace Research and Development) Aerospace Medical Panel Meeting on "Clinical Causes for Grounding" held in Oporto, Portugal, 21-22 June 1971. The article was published in the AGARD Conference Proceedings and is reproduced here with the kind permission of AGARD and the author.

Summary

In 1957 the U.S. Navy's Bureau of Medicine and Surgery (BUMED) directed the establishment of a Special Board of Flight Surgeons. This Board consists of specialists in Aerospace Medicine and related fields who can make recommendations concerning the physical qualifications of Navy and Marine Corps aircrew personnel to continue in a duty involving flying. The purpose of this paper is to describe the composition of this Special Board and its method of operation, to review the kinds of cases referred to it for the past 14 years, and the recommendations made for the disposition of these cases.

The opinions or conclusions contained in this report are those of the author and do not necessarily reflect the views or endorsement of the Navy Department or the naval service at large.

Background

In order to assist the Chief of BUMED, the Chief of Naval Personnel, and the Commandant of the U.S. Marine Corps in determining the qualifications of flight personnel to continue in an active flight status, the Chief of the Bureau of Medicine and Surgery recognized the need for a group of specialists to render complete evaluations upon Navy and Marine aircrav personnel. It was recognized that the most logical place to convene such a Board was the U.S. Naval Aerospace Medical Center located in Pensacola, Fla. This Center, composed at that time of the U.S. Naval School of Aviation Medicine, now the Naval Aerospace Medical Institute, and the U.S. Naval Hospital, Pensacola, possessed the specialized equipment and the requisite personnel to perform the comprehensive studies necessary to determine whether referred personnel were physically qualified and aeronautically adapted for duty involving the actual control of aircraft or for other duty involving flying.

In 1957 the Commanding Officer of the Naval Aerospace Medical Center (NAMC) was designated as the convening, and reviewing authority, for such a Board. The Commanding Officer of the Naval Aerospace Medical Institute (NAMI) was appointed as its

Senior Member with qualified flight surgeons and other specialists on the staff of the Institute and the Naval Hospital as members. The specialist members of the Board would participate in the examinations of cases appearing before the Board and in the deliberations of the Board. However, they would not be eligible to vote on the recommendations to be submitted by the Board. The precept of the Board gave voting privileges only to qualified flight surgeons.

When so recommended by BUMED, the Special Board of Flight Surgeons would evaluate cases ordered to appear before it either by the Bureau of Naval Personnel or, in the case of Marine Corps personnel, by the Commandant of the Marine Corps. BUMED would determine the requirement for a Special Board examination, either upon the recommendation from a medical report submitted by an individual flight surgeon or a local Board of Flight Surgeons in the field or upon the recommendation of an advisory counsel convened within BUMED. Recommendations for aircrew personnel to appear before the Special Board generally were to be made when such personnel presented a medical problem which had not been satisfactorily resolved by the field aviation medical personnel or a question raised in the minds of the aviation medical personnel in BUMED as to the individual's physical qualifications to continue in a flying status.

In addition to the above, Board members are now also appointed from the staff of the Naval Aerospace Medical Research Laboratory (NAMRL), a recently established unit under the Medical Institute responsible for the research functions previously performed by the Institute. The special research capabilities of this activity are available to the Special Board.

Board Procedures

Personnel reporting to the Special Board arrive in Pensacola, Fla., usually on Sunday, reporting to the Physical Evaluation Division of the NAMI the first thing on Monday morning. At that time the medical record is reviewed, and, depending upon the major medical problem for which the individual has been referred, one of the medical services within the Institute is assigned to carry out the major evaluation and work-up of the case. This may be internal medicine, cardiology, neurology, psychiatry, otorhinolaryngology, or ophthalmology. Whereas one service is responsible for the major workup of the case, the individual is also scheduled for examinations by all of the medical services and, in addition, receives complete dental, laboratory, and X-ray examinations, plus any other examinations such as surgical, orthopedic, dermatology, etc., that may be indicated. By the end of the week,

except in unusual circumstances, the individual will have been given a very complete examination of all the body systems and a very exhaustive examination of the system involved in the primary medical problem in question. If the physical evaluation conducted by the Board determines there is some question as to the advisability of the individual to continue in a full duty status, the process of the Board may be discontinued at that point and the person ordered for admittance to a naval hospital to determine his qualifications to remain on full duty.

Upon completion of the physical and mental evaluation by the Special Board, the individual appears before the assembled Board. The assembled Board must consist of at least four voting members, that is, qualified flight surgeons, and as many other flight surgeon members and consultants as are available. Usually 14-22 voting members plus some eight to ten consultants are present. This assemblage usually convenes on a Friday afternoon at the NAMI with the Commanding Officer of the Institute presiding. The proceedings of the Board are fairly informal. Initially, the individual whose case is under consideration is present while his medical case and past medical, family, social, and military history are presented by a representative of the service which has been responsible for preparation of the case. Upon completion of this presentation, the individual is encouraged to make any comments he desires on his behalf, and members of the Board may make inquiries of the individual. Upon completion of this phase, the individual appearing before the Board is requested to leave the room. Then the results of the various physical examinations and the evaluations conducted are presented, and the presenting service gives its diagnosis and recommendation as to disposition. Following this, discussion of the case ensues; upon completion, the Presiding Member of the Board asks for a vote by the qualified flight surgeons present. The members cast their vote either agreeing or disagreeing with the recommendations proposed. A majority vote carries. However, in the event of a very close vote and a strong feeling against the majority vote by several Board members, a minority report may be entertained by the Senior Member and, if approved by him, it will be submitted along with the recommendation of the majority. In the case of designated naval aviators or pilots, several recommendations may be considered. These are:

1. The pilot may be returned to unrestricted flying. In the U.S. Navy, this status is known as Service Group I. Personnel in this service group may fly any aircraft in which they are qualified and may operate on and off aircraft carriers.



Headquarters of the Naval Aerospace Medical Center, Pensacola, Fla. The two-star flag belongs to Navy Medical Corps RADM Oscar Gray, Jr., Commanding Officer of the Center. Center components include the Naval Hospital, the Naval Aerospace Medical Institute and the Naval Aerospace Medical Research Laboratory.

2. Service Group II. Aviators classified in Service Group II may fly any type of aircraft in which qualified; however, they may not fly on or off carriers except in helicopters.

3. Service Group III. In this service group a naval aviator may fly in actual control only in a multiple controlled aircraft, and a qualified aviator in Service Group I or II must be aboard.

4. An aviator may be placed in a temporary grounding status.

5. The aviator is recommended for permanent grounding.

6. One further category may be recommended. In the Navy we call this NIACA. This means the aviator is physically qualified to fly in naval aircraft *not* in the actual control of the aircraft. In this case, the individual may continue to receive his hazardous duty

pay for flying but is not qualified to actually control the aircraft. This disposition was first recommended by the Board in November 1960 after being authorized by BUMED in an instruction issued in October 1959. Since that time 14 aviators have been recommended for this flight status. It is only made when there are no medical contraindications to the person flying and is usually reserved for older aviators who are required to do considerable administrative flying.

Inasmuch as the Special Board of Flight Surgeons is an advisory group, the decision submitted by the Board to BUMED is only a recommendation. This recommendation may or may not be concurred with by BUMED; however, in the majority of the cases, the Board's recommendation is approved. BUMED will then submit its recommendation on the individual case to the Chief of Naval Personnel in the case of naval aviators or to

the Commandant of the Marine Corps in the case of Marine Corps aviators. It should be noted at this time that aviation personnel of the U.S. Coast Guard are also evaluated by the Navy Special Board of Flight Surgeons. Recommendations for the disposition of such personnel are sent directly to the Commandant of the Coast Guard.

Review of Special Board Recommendations

In addition to designated Navy, Marine Corps, and Coast Guard aviators, the Special Board of Flight Surgeons has referred to it for medical evaluations naval flight officers, such as navigators and radar intercept operators, and students in the various flight training programs of the U.S. Navy. This latter group of personnel are ordered directly to the NAMC by the Chief of Naval Air Training. In reviewing the types of medical cases evaluated by the Special Board for this paper,

these trainees and the naval flight officers have not been included; included are only designated pilots.

Table 1 is a resume of the cases appearing before the Special Board of Flight Surgeons at Pensacola from June 1957 to December 1970 by year and according to the recommended disposition of the cases. It also shows the number of individuals appearing before the Board during each year. It will be seen that during this period, 720 cases have been evaluated by the Special Board. This represents 580 designated Navy, Marine, and Coast Guard aviators inasmuch as some individuals have appeared two or more times before the Board. Of the cases, 499, or 70%, were returned to some category of flight status. Of the remaining 30%, 25% were permanently grounded, 3% temporarily grounded, and 2% put into NIACA or in a flying status not involving actual control of the aircraft. The following is the code used to designate case disposition in Table 1 and in succeeding tables.

Figure 1.—Code for Case Disposition

0	Service Group I	Unrestricted flying
1 ₂	Service Group II	Restricted from carrier operations except in helicopters
1 ₃	Service Group III	Multi-controlled aircraft with a qualified pilot of either Service Group I or Service Group II aboard
2	Temporarily grounded	
3	Permanently grounded	
4	NIACA (Not in actual control of aircraft)	

Table 1.—Number and Disposition of Cases of Designated Aviators Appearing Before Naval Special Boards of Flight Surgeons from June 1957 through December 1970

	0	1 ₂	1 ₃	2	3	4	Cases	Individuals
1957	7	0	1	0	3	0	11	11
1958	16	2	6	1	8	0	33	29
1959	20	0	11	4	12	0	47	41
1960	21	1	20	0	9	2	53	46
1961	37	4	23	2	26	0	92	83
1962	29	10	29	7	26	0	101	71
1963	28	10	14	3	20	0	75	56
1964	11	5	9	0	17	0	42	36
1965	18	5	7	1	19	4	54	46
1966	18	2	7	4	9	4	44	33
1967	26	3	12	2	8	1	52	36
1968	18	0	15	2	10	0	45	38
1969	13	1	9	1	12	1	37	29
1970	21	0	10	1	0	2	34	25
Total	283	43	173	28	179	14	720	580

As noted previously, some persons have had more than one appearance before the Board. There were 113 such persons, representing 19% of the total appearing in the 14 years covered by this report. Of these, 89 have appeared on two occasions, 21 had three appearances, and 3 individuals have been before the Board four times for a total of 253 cases.

In reviewing the case records for this presentation, it was found that some individuals appearing before the Board had more than one diagnosis assigned. In all, 792 total diagnoses were counted, and approximately 200 different diagnoses have been recorded. It is interesting to note that of the 113 individuals who appeared before the Board on more than one occasion, the repeat appearances, except in five instances, were for the same or related conditions. The five instances in which nonrelated conditions resulted in a subsequent appearance were as follows: One individual initially appeared before the Board because of an ocular muscle imbalance, and six months later he reappeared due to an episode of dysbarism with vasovagal collapse and was placed in a permanent Service Group III status. One individual appearing for an evaluation following a cerebral concussion was found to have familial cholesterolemia and was evaluated on two succeeding occasions before being returned to unrestricted flying. A third individual who appeared three times before the Board for evaluation of a postconcussion syndrome was determined on the third occasion to have an acute sinusitis which necessitated a fourth appearance. He too was returned to unrestricted flying. The fourth was an interesting case in which the pilot was initially referred because of vertigo of unknown etiology. His initial evaluation suggested a hypoglycemia as the cause of his symptoms, and he was placed in Service Group III to be reevaluated in six months. When he returned for this reevaluation, a peptic ulcer was present, under

treatment, resulting in a temporary grounding. The fifth case initially was evaluated for a habit spasm. He was returned to unrestricted flying. A year and a half later he again appeared before the Board because of a hemiparalysis of the diaphragm. Again he was returned to unrestricted flying.

As previously mentioned, over 200 different diagnoses have been evaluated. Time and space do not allow a list of all of these conditions; however, they included among others: skull fracture and chronic brain syndrome, dilated pulmonary artery, a surgically repaired interatrial septal defect, postoperative seminoma, and traumatic amputation of both lower legs. In order to present an idea of the kinds of cases referred to the Special Board, a resume of the incidence of such cases and the type of disposition made of them will be presented by body system or specialty.

Table 2 gives the total number of diagnoses as well as the percentage of the total diagnoses by specialty or body system. It should be remembered that this is a breakdown by diagnosis and not by cases appearing.

Table 3 is a breakdown of the cardiovascular disorders that have appeared before the Board during the period being reported. Defects of the cardiovascular system far and away out-numbered conditions in any of the other body systems. The various categories listed under cardiovascular disorders may be somewhat overlapping or interchangeable and are the author's own. It will be seen that 335 diagnoses in the cardiovascular area were evaluated. This amounts to 42% of all diagnoses evaluated by the Special Board. In most instances for this report the referring diagnosis is the one that has been used. However, in those cases where no specific diagnosis or only a symptomatic diagnosis was given to describe the medical condition upon referral, the diagnosis determined by the Board evaluation has been used.

Table 2.—Breakdown of Diagnoses by Specialty or Body System

	Number of Diagnoses	Percent of Total
Cardiovascular	335	42%
Psychiatry	111	14%
Neurology	103	13%
Ophthalmology	91	12%
Internal Medicine	84	10%
Otorhinolaryngology	35	5%
Orthopedic	23	3%
Surgical	10	1%
Total	792	100%

Table 3.—Cardiovascular

	0	1 ₂	1 ₃	2	3	4	Total
Abnormal Electrocardiograph	32	3	28	1	10	0	74
Conduction Defects	25	0	15	1	12	2	55
Arrhythmias	16	1	21	1	13	0	52
Arteriosclerotic Heart Disease (including coronary artery disease)	0	1	12	1	25	2	41
Blood Pressure Abnormalities	18	0	6	4	3	7	38
Syncope-Presyncope	9	0	6	0	6	1	22
Myocardial Infarct	0	0	1	0	8	0	9
Miscellaneous cardiovascular diagnoses	<u>17</u>	<u>2</u>	<u>18</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>44</u>
Total	117	7	107	9	82	13	335

It may be seen that 74 cases were referred to the Special Board for an evaluation of an abnormal electrocardiograph. This was 22% of all cardiovascular diagnoses; 12 persons were repeaters, and of those, four had three appearances before the Board. In slightly more than one half of the cases (57%), a recommendation for grounding or a restricted flying status was made. The majority were recommended for Service Group III; 32 cases or 43% were recommended for unrestricted flying.

The conduction defects, which accounted for 55 cases (16%) of all cardiovascular conditions, included bundle branch block, Wolff-Parkinson-White syndrome, delayed intraventricular conduction defect, and a questionable P-R interval. Of these, there were 43 cases of bundle branch block; 31 right and 12 left. Of the right bundle branch block cases, 87% were returned to a flying status; only 42% of the left bundle branch block cases were returned to some category of flying and 58% were permanently grounded. The Wolff-Parkinson-White syndrome made up the next largest portion of the conduction defects, 10 cases in all. Of these 10, four were returned to unrestricted flying, four were permanently grounded, and two were placed in Service Group III status. It may be of interest that one of the cases of W-P-W appearing before the Board exhibited a very unstable electrocardiographic pattern. Because of this, the Board recommended permanent grounding. The individual concerned, after quite an extensive review of the literature on Wolff-Parkinson-White syndrome, submitted an appeal to the Chief of



RADM Oscar Gray, Jr., MC, USN (left) welcomed to Pensacola CAPT R.E. Strange, MC, USN, Philadelphia Naval Hospital Intern Program Director (right) when a group of interns from Philadelphia and Memphis visited the Center. CAPT Strange accompanied the interns who were interested in the flight surgeon training program.

Naval Personnel in which he requested a return to unrestricted flight status. This appeal, going through channels, came to the Medical Institute where an endorsement was inserted which stated that it was believed the individual was not fit for unrestricted flying; however, no objection to a recommendation for Service Group III flying would be interposed. Upon receiving this appeal, BUMED forwarded to the Bureau of Naval Personnel a recommendation that the individual be returned to an unrestricted flying status. This recommendation was concurred with by the Bureau of Personnel. The aviator returned to unrestricted flying and remained in that status for the next six years, at which time he developed recurrent episodes of paroxysmal auricular tachycardia. He reappeared before the Special Board of Flight Surgeons in 1967, and following evaluation he was placed in a Service Group III flight status. It has been the general opinion of the Board over the past several years that the risk for an individual exhibiting a W-P-W syndrome without symptoms is not significantly greater than for our aviation population at large. Such personnel are, therefore, returned to unrestricted flying. However, those individuals reporting the occurrence of a sudden onset of rapid heart rate or fluttering in the chest or who show unstable electrocardiographic patterns are generally recommended for grounding, or Service Group III flying status at least.

The next most common cardiovascular condition to appear before the Board was cardiac arrhythmia which included auricular (atrial) fibrillation and flutter, premature beats, premature ventricular contractions, and supraventricular and ventricular tachycardia. A total of 52 cases have been seen; the majority of these (28) were auricular or atrial fibrillations. Only 18% of these 28 cases were permanently grounded; however, it should be noted that 50% of the total were placed in a restricted flying status in which the individual had to fly with a copilot. One case of auricular flutter was evaluated. This was an enlisted pilot who had an atrial septal defect which was repaired; following the surgical repair he demonstrated episodes of atrial fibrillation and flutter. This individual was permanently grounded. The next most common arrhythmia was premature ventricular contraction which represented 17% of the total number of arrhythmias seen; 73% of all arrhythmias were returned to some flight status in actual control of the aircraft.

Forty-one cases showing definite evidence of arteriosclerotic heart disease appeared before the Board. This group includes those in whom a diagnosis of coronary artery disease (CAD) was made. None of these cases was returned to unrestricted flying although 13 were

returned to a restricted flying status. Of this group, 65% were recommended for permanent grounding.

There were 38 cases referred to the Board showing abnormalities of the blood pressure; 16, or 42%, of these were determined to have a labile blood pressure. All of this labile blood pressure group were returned to a flight status, 14 to unrestricted flying.

The syncopal-presyncopal group was composed of 22 cases, of which approximately two-thirds were returned to some category of flight status. Included in this group was one case of Stokes-Adams syndrome. This individual was recommended for permanent grounding.

As indicated previously, the cardiovascular group by far represented the majority of personnel appearing before our Special Board of Flight Surgeons. Psychiatry, neurology, ophthalmology, and internal medicine were the next most common causes representing, respectively, 14, 13, 12, and 10% of the total number of cases appearing before the Board during the years reported.

Psychiatry

Table 4 is a resume of the 111 psychiatric cases appearing. Of this total there was an approximate equal division between those returned to some category of control of aircraft and those who were grounded; 56% returned to a flying status, and 44% were grounded. The most common diagnosis was that of adult situational reaction. This diagnosis appeared in some 25% of the psychiatric cases. In reviewing these cases, which accounted for 28 of the psychiatric diagnoses, it is interesting to note some of the problems revealed in the history of these cases. It would appear that the diagnosis of adult situational reaction may be used to cover a multitude of sins. Listed under this diagnosis is one individual who believed he was the victim of discrimination. He attributed this to his ethnic group, stating that, although he was a most capable pilot, he had never been advanced to the position of plane commander and that others less proficient than he were advanced over him. He also complained that he and his wife were not sociably well accepted by other squadron members. In this case, the Board recommended the individual be returned to an unrestricted flight status, and at the same time indicated the Board did not consider this to be a medical problem but one which should be handled administratively at the command level. I would like to say at this time that in a situation when a case is referred to the Board which appears to be more of an administrative or command problem than a medical one, and it does occur, the



The author, CAPT Marvin D. Courtney, MC, USN, (center), CO, NAMI, joined Dr. Carl Williams (left), Chief of the Hearing Conservation Division at NAMI, in greeting LCDR Joseph Drozd, MSC, USN, of the Hearing and Sight Conservation Section (Code 7311), BUMED. The Navy's Hearing Conservation Program was discussed by LCDR Drozd, Dr. Williams and his staff.

Board tries to make a recommendation based only upon the medical aspects of the case, refraining from comment relative to the administrative aspects of the case in question. If there is no significant medical problem in the opinion of the Board, the individual will be found to be physically qualified and aeronautically adapted for duty involving actual control of aircraft in unrestricted flying. As previously mentioned, personnel who presented with a diagnosis of adult situational reaction had a variety of interesting problems, such as difficulty in landing aircraft, inability to fly at night, and loss of desire to be catapulted from a carrier at night. This last was a senior carrier pilot slated to take over as squadron commander; he was permanently grounded. One pilot

had a problem related to flight instruction. In this case, the individual found himself unable to function effectively as a flight instructor, although he had performed satisfactorily as an operational helicopter pilot on several carrier deployments. This individual was recommended for permanent grounding. A number of the adult situational reaction cases complained of difficulty in vision or presented deficiencies in depth perception or ocular muscle balance.

It will be noted that in the psychiatric group there were eight cases (7%) of alcoholism, but the diagnosis of alcoholism usually was a secondary one. Of the pilots in which a diagnosis of alcoholism was made 62% were permanently grounded.

Table 4.—Psychiatry

	0	1 ₂	1 ₃	2	3	4	Total
Adult Situational Reaction	9	1	6	2	9	1	28
Personality Disorders	8	0	0	2	4	0	14
Depressive Reaction	5	0	2	2	2	1	12
Anxiety Reaction	1	0	3	1	4	0	9
Alcoholism	2	1	0	0	5	0	8
Fear of Flying	5	0	0	0	2	0	7
Miscellaneous Psychiatric Diagnoses	15	2	2	1	13	0	33
Total	45	4	13	8	39	2	111

Fear of flying represented some 6.3% of the psychiatric cases appearing before the Board; 71% of these individuals were returned to an unrestricted flight status, and the other 29% were permanently grounded — it was all or nothing with that group.

Another interesting diagnosis included in this section under miscellaneous psychiatric diagnoses, is that of phobia of dead bodies. This was a young Coast Guard pilot flying search and rescue missions. He became quite anxious and disturbed following several

flights in which nonsurvivors of water accidents were brought aboard his aircraft and flown back to base. The recommendation finally made in this individual's case was that he be permanently grounded.

Neurology

Table 5 is a resume of the neurological cases referred to the Special Board, a total of 103. Some 68% of these cases were returned to a flight status and 32% were grounded; 19% of these cases were due to

Table 5.—Neurology

	0	1 ₂	1 ₃	2	3	4	Total
Vestibular Dysfunction (Vertigo)	10	0	4	0	6	0	20
Convulsive Seizures	2	1	4	0	8	0	15
Cerebral Trauma	5	0	3	1	3	0	12
Migraine	4	1	4	0	2	0	11
Abnormal EEG	3	0	2	0	0	0	5
Miscellaneous Neurologic Diagnoses	14	4	10	1	11	0	40
Total	38	6	27	2	30	0	103

Table 6.—Ophthalmology

	0	1 ₂	1 ₃	2	3	4	Total
Defective Visual Acuity	11	18	4	0	4	1	38
Ocular Muscle Imbalance	8	1	3	0	4	0	16
Defective Depth Perception	4	1	0	0	2	0	7
Defective Color Perception	3	0	0	0	2	0	5
Glaucoma	1	1	1	0	0	0	3
Night Myopia	0	3	0	0	0	0	3
Miscellaneous Eye Conditions	9	2	3	0	4	1	19
Total	36	26	11	0	16	2	91

vestibular dysfunction, of which 70% were returned to a flight status. Convulsive seizures and cerebral trauma or history thereof constituted 26% of this group, about an equal number of which were returned to a flight status or permanently grounded. About 11% were evaluated because of migraine, and 82% of these cases were returned to flight status.

Ophthalmology

It is shown in Table 6, as would be expected, that the majority of the eye cases referred to the Board presented defective visual acuity (42%), with a myopic error being the most common cause. Ocular muscle imbalance was the next most common cause (18%). As can be seen, the great majority of the defective visual acuity cases were returned to some category of flight status as were those evaluated for ocular muscle imbalance.

Internal Medicine

Eighty-four cases were assigned to internal medicine, as shown in Table 7, representing 10% of the total cases evaluated. The most common diagnoses were peptic ulcer disease (19, or 23%) and diabetes mellitus (10, or 12%). As can be seen, in both of these conditions more than 50% of the cases were recommended for permanent grounding. The majority of cases in this group who were returned to unrestricted flying were in the miscellaneous group, which included such conditions as pneumothorax, urinary tract infection, thyrotoxicosis, questionable hypoglycemia, glycosuria of unknown etiology, and hyperventilation syndrome.



CDR William W. Simmons, MC, USN, former senior medical officer aboard the USS CONSTELLATION and 1970 recipient of the Julian E. Ward Memorial Award, has returned to NAMI in Pensacola where he will participate in the training of approximately 300 physicians, psychologists, physiologists and technicians each year to support naval air operations.

Also two cases were studied to determine tolerance to hypoxia. A case of cholesterolemia, as previously referred to, was evaluated on two occasions and both times was determined to be qualified for unrestricted flying.

Table 7.—Internal Medicine

	0	1 ₂	1 ₃	2	3	4	Total
Peptic Ulcer Disorder	5	0	3	1	10	0	19
Diabetes Mellitus	3	0	1	1	4	1	10
Abnormal Glucose Tolerance Test	1	0	2	0	2	0	5
Asthma	1	0	2	0	2	0	5
Hypothyroidism	3	1	0	1	0	0	5
Obesity	0	0	0	3	1	0	4
Miscellaneous Medical Diagnoses	18	1	9	3	5	0	36
Total	31	2	17	9	24	1	84

(To be continued) 

THE GASTROENTEROLOGISTS' CORNER

POSTOPERATIVE JAUNDICE

By CDR Donald O. Castell, MC, USN; Gastroenterology Branch,
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One of the more difficult and perplexing problems for the consultant gastroenterologist/internist is the patient who develops jaundice after a surgical procedure. The causes of postoperative jaundice are many and varied, and can be of very little clinical significance, or catastrophic. Table 1 provides a differential list of the most likely causes of jaundice in the post-surgical patient, and for the sake of convenience has been broken down into three categories: 1) hemolytic jaundice, 2) liver cellular disease, and 3) biliary obstructive type jaundice.

Overproduction of Bilirubin (Hemolysis)

Transfusion Reaction: The patient who has had significant transfusion reaction during surgery will usually develop his jaundice in the first twenty-four hours post-operatively. Careful scrutiny of the anesthetic record or the operative report will usually reveal some evidence of a transfusion reaction during the procedure. The other major clue to the diagnosis is that the bilirubin will be primarily indirect, as is typical of all the hemolytic syndromes.

Transfusion With Old Blood: The older the blood received by the patient, the greater the breakdown of

The opinions expressed herein are those of the author and cannot be construed as reflecting the views of the Navy Department or of the naval service at large.

transfused red blood cells, and the greater likelihood of a transient postoperative jaundice. Again the bilirubin will be primarily indirect and the jaundice will most likely appear within the first twenty-four hours after surgery. It has been shown that 14 day old blood will be ten percent hemolyzed within the first day after

TABLE 1

POSTOPERATIVE JAUNDICE

I. Overproduction of Bilirubin (Hemolysis)

- A. Transfusion Reaction
- B. Old Blood
- C. G6PD Deficiency (glucose-6-phosphate dehydrogenase)
- D. Sickle Cell Disease
- E. Gilbert's Disease

II. Hepatocellular Disease

- A. Preexisting Liver Disease
- B. Liver Hypoxia
- C. Halothane Hepatitis
- D. Serum Hepatitis

III. Obstruction

- A. Thorazine
- B. Complication of Cholecystectomy
- C. Hemorrhage Into Tissues
- D. Benign Postoperative Cholestasis

transfusion.¹ The significance of such hemolysis in the patient who has received a large amount of blood during surgery can be appreciated in view of the following facts. Five hundred milliliters of blood contain approximately 75 grams of hemoglobin with the potential to yield 2,500 mgm of bilirubin. Ten percent hemolysis of one unit therefore can potentially yield 250 mgm of bilirubin, which, dissolved in 3,000 ml of plasma, could elevate the total bilirubin content approximately eight mgm percent. It is readily apparent that any degree of hemolysis from the use of aged bank blood can result in a significant jaundice in the postoperative period.

Occult Hemolytic Disease: The patient with a G6PD deficiency of the red blood cells will occasionally have an episode of hemolysis following surgery if a sulfonamide type of medication has been utilized. Again the bilirubin will be primarily indirect and should appear within the first twenty-four hours of the beginning of such therapy. Careful scrutiny of the patient's drug orders, therefore, is important to rule out this cause of postoperative jaundice. Also to be included under occult hemolytic disease is the patient with a mild sickle cell defect in whom the insult of the surgical procedure can prove critical in the precipitation of increasing hemolysis.

Congenital Non-hemolytic Hyperbilirubinemia (Gilbert's Disease): Gilbert's disease is a not-too-rare abnormality of the hepatic uptake mechanism for bilirubin characterized by low levels of jaundice (serum bilirubin values of 2-3 mgm percent) with the bilirubinemia being primarily indirect in type. These individuals are prone to show significant increases in bilirubinemia when stressed. This can often be observed in the patient who has an acute febrile illness or in the present context, in the patient who has had a surgical stress. Again, the jaundice should occur within the first one to two days postoperatively and should be mainly of the indirect type. It should also be transient and require no definitive therapy.

Hepatocellular Disease

Preexisting Liver Disease: The significance of underlying liver disease as a cause of postoperative jaundice was recently emphasized by a report from the Massachusetts General Hospital which disclosed that 41 percent of patients with postoperative jaundice could be shown to have preoperative hepatic dysfunction.² The most likely possibilities for producing such an abnormality are cirrhosis of the liver and chronic

congestive heart failure. Occult hepatitis, unrecognized preoperatively, constitutes a third diagnostic possibility. It is often particularly difficult to recognize an occult cirrhotic process in the patient whose state of nourishment seems quite normal. In the absence of preoperative liver function tests this diagnosis can be extremely difficult to make, and the physician may have to rule out all the other more likely causes of jaundice before making such a diagnosis. When possible, and if the importance of a diagnosis seems great enough, a liver biopsy may be required to confirm a suspicion of one of these abnormalities.

Hepatic Hypoxia: Liver necrosis due to vascular insufficiency during the surgical procedure has recently been incriminated as a likely cause of post-operative liver dysfunction and jaundice.³ This diagnosis is most readily supported by finding a definite indication of blood pressure difficulty or hypoxia in either the anesthetic record or the surgical report. The jaundice and liver dysfunction following such an episode is usually transient, however it can result in massive necrosis and the death of the patient.

Halothane Jaundice: In recent years the likelihood of postoperative jaundice secondary to halothane anesthesia has caused increasing interest. In a survey of the medical literature it is easy to find both approving and disapproving opinions on the relationship of this anesthetic agent to postoperative jaundice and hepatitis. It would appear that the weight of evidence now incriminates halothane as a cause of jaundice.⁴ However, it is important to recognize that on the whole this is a very safe and effective anesthetic, and the incidence of serious liver problems after its use is really quite low, probably representing about one per 10,000 administrations. It has recently been stressed, however, that the mortality rate in patients who develop hepatitis secondary to halothane is high, with a four percent incidence of fulminating hepatitis. The most recent convincing evidence that halothane definitely does produce a hepatitis is that presented by Klatskin and Kimberg in reporting their experience with an anesthetist who had repeated episodes of liver disease.⁵ Deliberate rechallenge of the patient with halothane led rapidly to chills, fever, abnormal liver function tests and abnormalities in the liver on biopsy. The patient later progressed to develop an early form of cirrhosis.

The clinical features of halothane hepatitis suggest that it is a hypersensitivity reaction. The incidence of this problem is much more frequent after multiple anesthetic encounters than after the first exposure.

The timing of the appearance of jaundice is also somewhat different; jaundice typically occurs between the tenth to 28th postoperative day following first exposure, and between the third to 17th postoperative day after the second exposure. The other clinical features of this entity include the frequent appearance of post-operative fever which usually precedes the jaundice, significant elevations of the serum transaminase values, and the occasional development of a circulating eosinophilia. Australia antigen is reportedly negative in these cases. It is also important to note that there is no good evidence available to indicate that preexisting liver disease carries an increased risk of halothane hepatitis; therefore, there is probably no reason to exclude this anesthetic from use in the patient with known liver disease. The most reasonable possible contraindication to the use of halothane lies in the history of a hepatitis from its prior use.

Serum Hepatitis: Jaundice appearing late postoperatively is characteristically attributed to blood-transmitted hepatitis. The classical incubation period for this form of hepatitis is 60 to 180 days. However, it is important to remember that recent studies have indicated that the infectious hepatitis virus can also be transmitted by infected blood, and that an incubation period as short as 15 days is reasonable for blood-transmitted hepatitis.

Obstructive Jaundice

Thorazine: Thorazine and some of its related drugs have been well known to produce an obstructive type of hyperbilirubinemia. It is obvious that a clinical impression of thorazine type jaundice is readily obtained from careful scrutiny of the patient's chart for premedication or postoperative medication with thorazine. This assumes particular importance in the patient who has had previous gall bladder surgery in which a surgical complication could be more serious in nature.

Complications of Gall Bladder Surgery: The patient who has had biliary tract surgery runs the risk of certain complications inherent in the procedure itself that may result in obstructive jaundice. The immediate appearance of jaundice postoperatively with the characteristic features of obstructive jaundice should raise the suspicion of an inadvertent ligation of the bile duct, and may require fairly immediate reoperation.

Jaundice appearing at almost any interval following biliary tract surgery might readily be produced by the

presence of a stone in the common bile duct. Obviously, this dreaded complication is much more likely in the patient who had a gall bladder removed which contained multiple small stones, as opposed to the patient with a single large calculus.

The third major postoperative gall bladder problem is stricture of the common bile duct. This dreaded complication may occur considerably late following surgery with an interval as long as three months, due to a progressive constrictive type of cholangitis. Again, the biochemical abnormality presented is that of an obstructive type jaundice, with elevation in total and direct bilirubin values, and a concomitant significant elevation of the serum alkaline phosphatase. The serum transaminase value should only be moderately elevated.

Hemorrhage Into Tissues: A less likely and often overlooked cause of postoperative jaundice occurs in the patient who has sustained massive hemorrhage into the body tissues.¹ Most of these patients have undergone surgery on an aortic aneurysm, with postoperative bleeding into the retroperitoneal space and psoas muscle area. Usually extensive hematomas form in this area and the clinical picture is one of blood pressure fall and multiple transfusions. Even though the jaundice is most likely produced by the breakdown of the bilirubin in the tissues, in the reported cases the serum bilirubin has often been high (up to 40 mgm percent) and was often associated with a rise in the alkaline phosphatase, giving the appearance of an obstructive type jaundice. The prognosis in these patients is obviously very poor.

Benign Postoperative Cholestasis: To complete a consideration of the obstructive type jaundice occurring postoperatively one must include this rather vague entity that was initially described in a group of patients who had experienced long, difficult surgical procedures.⁶ Such patients present a benign form of jaundice, accompanied by elevated alkaline phosphatase and less elevation of transaminase values, which is transient and clears without definitive therapy. The patients are usually afebrile. Although the possibility of this diagnosis is quite remote, it remains important in the differential diagnosis and should be considered when all else seems unlikely.

Jaundice in the postsurgical patient can present a difficult problem for the consultant as well as for the surgeon. The decision whether the patient needs reexploration is obviously very important, particularly when considering the possibilities of post-cholecystectomy abnormalities. Careful scrutiny of the patient's

history and of the hospital chart should lead to a strong suspicion of the diagnosis in the majority of cases. It should be obvious from the preceding discussion that the therapy for most of these cases is primarily one of observation and removal of the drug or precipitating factor if possible. Postoperative jaundice is rarely an emergency situation and should allow the consultant the opportunity to carefully evaluate all the diagnostic possibilities before making a rash

judgment concerning therapy.

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1. N Engl J Med 276:591, 1967.
2. Surg Gynecol Obstet 124:747, 1967.
3. N Engl J Med 276:645, 1967.
4. Ann Intern Med 71:467, 1969.
5. N Engl J Med 280:515, 1969.
6. N Engl J Med 272:545, 1965. 

COMMANDER IN CHIEF MAKES MASTER CHIEF



"Promoted" to Honorary Master Chief at Pearl Harbor in Oct 1971 was the Pacific Fleet Commander in Chief, Admiral Bernard A. Clarey. The Admiral holds the certificate of "appointment" awarded by the Command Master Chiefs of the Pacific Fleet at the conclusion of a three-day conference at CINCPACFLT headquarters. Presenting the certificate were the Master Chief of the Navy, J.D. Whittet (center); Master Chief of the Pacific Fleet, F.W. DeMase (left); and Master Chief of the Atlantic Fleet, A.T. Johnson. The conference, which included the seven type command master chiefs of the Pacific Fleet, provided an exchange of ideas and a set of recommendations for review by ADM Clarey and the Pacific Fleet type commanders. The award to the Commander in Chief recognized his support, as Vice Chief of Naval Operations and since taking command of the Pacific Fleet, of the "people programs" benefiting enlisted personnel.—PAO, Commander in Chief U.S. Pacific Fleet. 

PROFESSIONAL REVIEW OF FLEET MARINE FORCE AUTHORIZED MEDICAL ALLOWANCE LISTS

Although the medical profession has made tremendous advances in science and skills, the currently authorized Marine tentage hospital differs little from those used during World War II. In order to provide a considerably improved and better-equipped hospital, it is the intention of the U.S. Marine Corps to adopt the U.S. Army-developed Medical Unit Self-Contained Transportable (MUST) system for certain field medical units.

The desirable features of the MUST system include mobility, short erection time, controlled environment, and all-weather operational capability. MUST system modules consist of an expandable element, an inflatable element, a utility element, and an expandable

ward container. The expandable element provides a shelter with exterior dimensions measuring about 13 x 20 ft. The inflatable unit is an element with air-inflatable ribs that can be assembled to provide a shelter with a floor area measuring 20 ft. in width and 56 ft. or more in length. The utility element provides electrical power, refrigeration, air heating, water heating, water pumping, air pressure for inflatable elements, and compressed air or suction. The ward container is a combination hard/soft shelter element. It provides 110 sq. ft. of administrative or ancillary space when not being utilized as a shipping container.



Discussing modification of Army MUST allowances to meet the requirements of an FMF Medical Battalion are (from left to right in a clockwise direction): LCDR Stockman, MSC, USN, FLDBR BUMED; LTJG Voelkel, NC, USN, NAVHOSP Phila; LCDR Fancher, MSC, USN, NAVHOSP Phila; CDR Cowen, MC, USN, NAVHOSP Phila; LCDR Farrell, MC, USN, NAVHOSP Phila; CDR Cremona, MC, USN, NAVHOSP Phila; LCDR Willens, MC, USN, NAVHOSP Phila; LCDR Walker, MSC, USN, FLDBR BUMED; LCDR Liming, MSC, USN, BUMED; and LCDR Rienstra, NC, USNR, NAVHOSP SDIEGO.



Four section inflatable unit (1) is placed in position adjacent to expandable units (2). A one-section inflatable in rolled-up package configuration is seen in left foreground (3). Note the small package size. Detached mobilizer is seen at right (4).

The elements of the MUST field hospital are packed so that they can be shipped by almost any means of transportation. The largest packaged unit (the expandable element) measures only 154 x 92 in., is 96 in. high and weighs 4,000 to 9,500 pounds. Self-contained equipment is included to tailor the element to a specific mission. All modules are self-contained, with lifting and towing provisions, and attachment points for a transporter. All modules can be transported on an M-35 truck or transporter loaded for towing.

To assist the Commandant, U.S. Marine Corps in developing MUST requirements and examining Fleet Marine Force (FMF) medical allowances, a professional review of the U.S. Army MUST allowances and certain FMF Authorized Medical Allowance Lists was recently conducted at the Field Branch, BUMED.

The objective of the review was the modification of Army MUST allowances to meet the mission require-

ments of an FMF Medical Battalion. During two weeks in October 1971 the review was conducted by individuals who are very familiar with field medicine. The members were selected because of their unique professional abilities in the specialties of surgery, orthopedics, anesthesiology, flight surgery, internal medicine, laboratory medicine, preventive medicine and nursing care. The following officers served on the Review Committee:

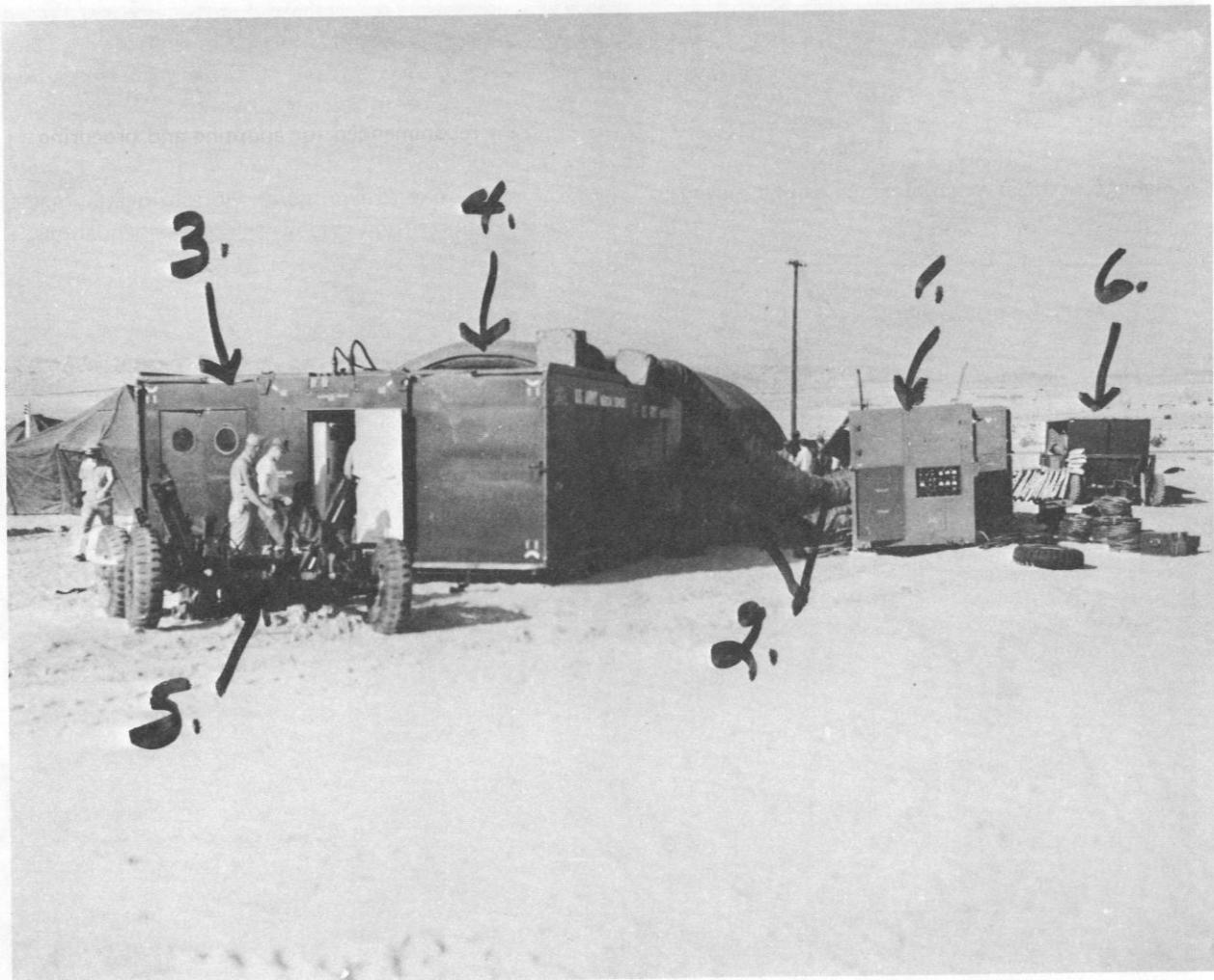
CAPT Jacob V. Brown, MC, USN, NAVHOSP GLAKES

CAPT C.E. Alexander, MC, USN, BUMED

CDR Frederick J. Cremona, MC, USN, NAVHOSP PHILA

CDR William A. Elliot, MC, USN, NAVHOSP LBEACH

CDR William M. McDermott, Jr., MC, USN, NAVHOSP PTSMH VA



Utility unit (1) is seen with environmental ducting (2) connected to expandable (3) and inflatable (4) units. Mobilizers (5) are seen in foreground. Transport boxes (6) for inflatable unit are seen at right.

CDR Malcolm Cowen, MC, USN, NAVHOSP
PHILA
CDR W.E. Frazier, MC, USN, NAMRU NO. 4,
GLAKES
CDR Donald J. Jarzynski, MC, USN, NAVHOSP
BETH
CDR A.K. Rogers, MC, USN, NAVHOSP PHILA
LCDR James F. Lyons, MC, USN, NAVHOSP OAK
LCDR Kenneth McDonald, MC, USN, NAVHOSP
NPT
LCDR John S. Willens, MC, USN, NAVHOSP
PHILA
LCDR Raymond L. Farrell, MC, USN, NAVHOSP
PHILA
LCDR Marian Rienstra, NC, USNR, NAVHOSP
SDIEGO
LCDR James E. Fancher, MSC, USN, NAVHOSP
PHILA

LTJG Roger R. Voelkel, NC, USN, NAVHOSP
PHILA

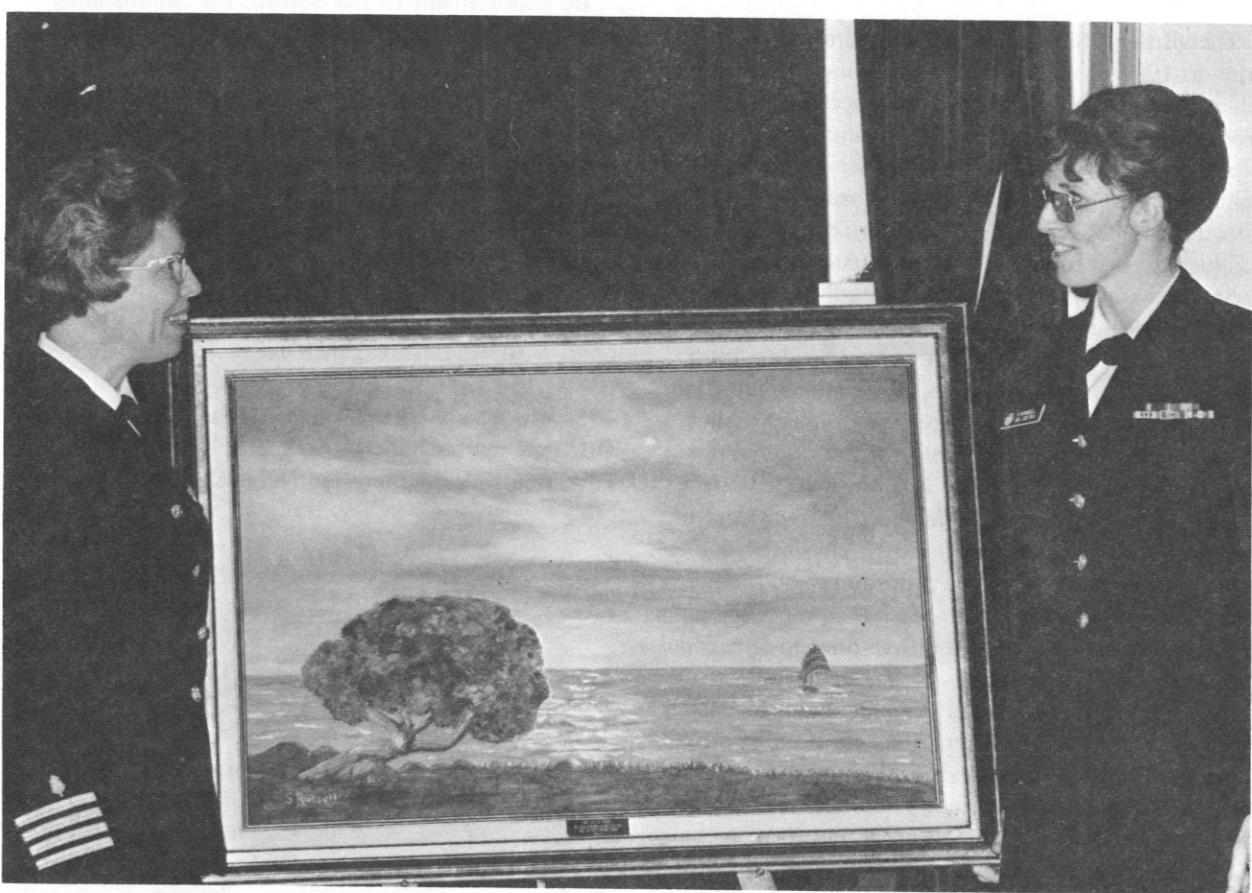
Additionally, requirements for neuropsychiatric material were reviewed by CDR Rolf W. Steyn, MC, USN, and requirements for ophthalmic material were reviewed by LCDR D.N. Cohen, MC, USNR and LCDR R.T. McKinlay, MC, USN, all of whom are members of the staff at Naval Hospital Bethesda, NNMC.

The Review Committee developed listings of supplies and equipment required for the following functions: surgery, surgical supply sterilization, clinical laboratory, pharmacy, ward, patient receipt and disposition, emergency treatment, intensive care, and medical supply. In addition, listing of supplies and equipment were developed for MUST Preventive Medicine sections, and for use of the Marine Air Wing Medical Department. FMF medical allowances in the following areas were reviewed: Separate Surgical Company; Marine Aircraft

Group Headquarters, and Headquarters Squadron Fleet Marine Force; the Aviation Medical Supply Block; the Headquarters and Service Company; the Collecting and Clearing Company; and the Preventive Medicine Section.

In order to provide updated allowances of readily available functional material which can be moved to a destination, rapidly erected, and meet all performance requirements, additions, deletions and quantity changes to current authorized medical allowances were formulated. Allowance additions provided for essential items and functional surgical trays of instruments required in the operating room for emergency care of battle casualties.

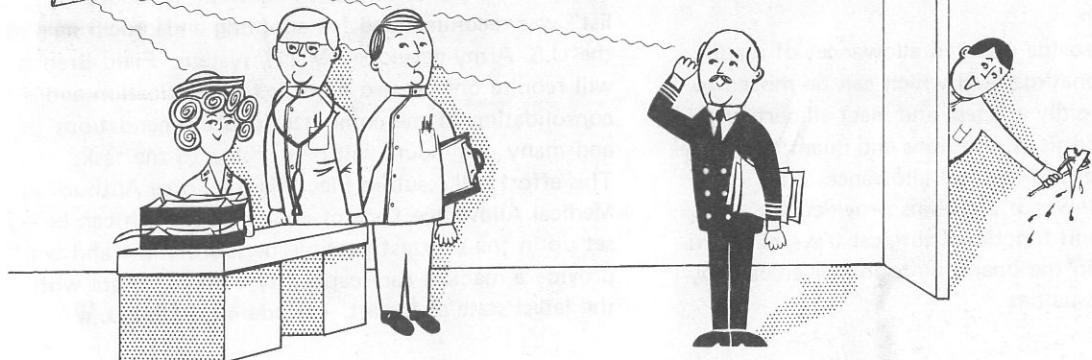
Recommendations of the committee were forwarded to the Field Branch, BUMED for consolidation as the new recommended authorized medical allowances for Fleet Marine Force units. In addition, a "shopping list" was recommended for adopting and procuring the U.S. Army-developed MUST system. Field Branch will require one to two months for purification and consolidation of the committee's recommendations and many man-hours will be devoted to the task. This effort will result in Fleet Marine Force Authorized Medical Allowance Lists of equipment which can be set up in the shortest possible period of time and will provide a medical care capability commensurate with the latest state-of-the-art. — Code 49, BUMED. ☺



During ceremonies on 8 Oct 1971 at the Women Officers School in Newport, R.I., CAPT Alene B. Duerk, NC, USN, (left), Director, Nursing Division, BUMED, presented to the School an original oil painting. The painting was presented on behalf of the Navy Nurse Corps to honor the School's new student quarters. Women Officers School trains approximately 500 Nurse Corps officers each year. Pictured with CAPT Duerk is the accomplished artist, LCDR Susanne Russell, NC, USN (right). ☺



Notes and Announcements



VISITING CHIEFS OF SERVICE INSERVICE LECTURE PROGRAM

The visiting Chiefs of Service Program was initiated prior to 1958 as one method of utilizing the teaching talents of our leading naval clinical specialists. This program provided for Bureau sponsorship of occasional exchange visits of various Chiefs of Service, within reasonable proximity to other naval hospital and medical activities, for one- or two-day periods. The visitor conducted ward rounds, taught seminars, chaired departmental conferences, and held consultations and clinics for difficult or unusual cases.

Experience reveals that these visits provide a fresh viewpoint and serve as an excellent stimulus, both for the visitor and the host activity. The Bureau desires to expand the program not only for the original purpose as noted above, but also for informal interchange of ideas in related areas. Differences in any aspect of teaching methods, work assignments, physical plant layout, or actual patient care procedures could be identified and examined with possible benefits accruing to the participants as a result of free-flowing discussion and exchange of techniques.

The program is designed to stimulate the professional interest of all medical officers, upgrade training programs, and improve patient care. The program is not restricted to Graduate Training Hospitals. The Bureau encourages participation by all naval hospitals.

The selection of visiting Chiefs of Services (or other medical officers) and initiation of the visit should be made by the requesting hospital. When a visit has been mutually agreed upon, an official letter should be addressed to the Bureau, via the Commanding Officer of the visiting medical officer, approximately three weeks before the proposed visit. The Bureau of

Medicine and Surgery defrays all costs in connection with the TAD orders engendered by this program.

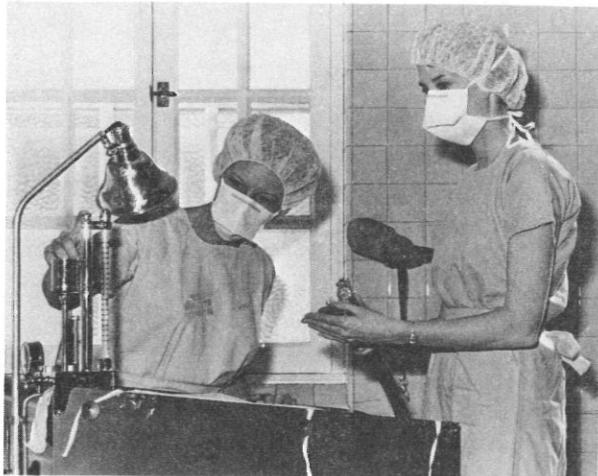
By endorsement to the Bureau, the commanding officers should make a statement as to the availability of the officer concerned. Attention is invited to BUMED Instruction 1500.11 dated 4 Jan 1972. Should new ideas or methods developed under this program be adopted, a short report shall be submitted to the Bureau (Attn: Code 31) for possible dissemination and use at other naval activities. — Code 316, BUMED. ☺

NAVY NURSE CORPS NURSE PRACTITIONER PROGRAMS

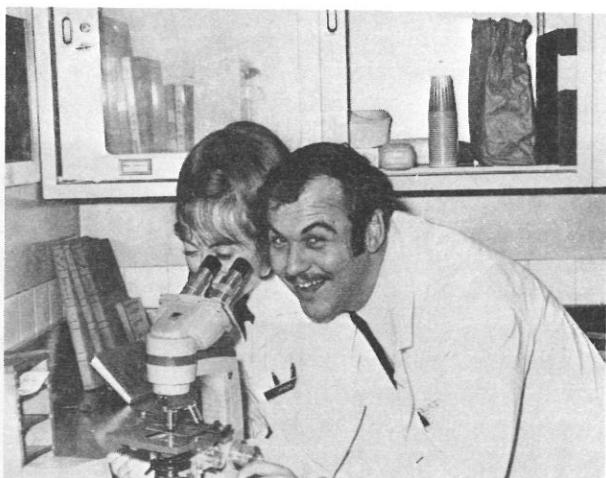
Several billets are still open for the next convening OB/GYN Nurse Clinician Course at Naval Hospital Portsmouth, Va. Interested Nurse Corps officers of



LT Frankie Lukey (left) and LCDR Joyce Robel (right) are busily working in a very active prenatal clinic.



LCDR Joyce Robel (left) and LT Karen Oberhausen (right) check out the Infant Kreiselman Resuscitation Unit in the delivery room between cases.



LTJG Joyce Vickers (left) receives instruction from LCDR Robert Louviere, MC, USN (right) in the use of the microscope.



Student clinicians, instructors and physicians gather together on GYN Ward Rounds. It looks to us as if Nurse Corps officers with an eye to the future and a bent for rewarding professional challenge ought to contact Code 324, BUMED, without delay.

the regular or reserve Navy, willing to obligate for one year upon completion of the six-months' program are urged to participate. Applicants must have experience in OB/GYN nursing and be interested in extending their role as a nurse associate to the physician in OB/GYN ambulatory care settings.

Full-time duty under instruction in a civilian course to prepare the pediatric nurse practitioner to function in the expanded role of diagnostic, preventive, and therapeutic branches of health care to children is available to Nurse Corps officers of both the regular and reserve Navy. Although programs leading to a master's

degree are reserved for officers augmented to regular Navy, some billets have been made available in four to six-month courses for nurses of the reserve Navy.

Qualified Nurse Corps officers interested in either program are urged to submit applications in accordance with BUMED Instruction 1520.14A. Further, information may be obtained by contacting the Nursing Division, Code 324, Bureau of Medicine and Surgery.

The pictures accompanying this notice certainly reflect the interest and fine spirit shown by an outstanding class of officers currently involved in the OB/GYN Nurse Clinician Course at Portsmouth Naval Hospital. ☺

STUDENT NURSES GO NAVY



Standing from left to right are: VADM G.M. Davis, Surgeon General; Jane Zeller; Mary Beth Town; William Johnson, Jr.; Jennifer Shavell; Alice O'Keefe; Patricia Hong; Angela Ducey; Nancy Hermann; Virginia Callanen; Patricia Douglas; Christine Bassett; Carolyn Beck; and Carol Adkins.



Getting initiated already are ENS Alice O'Keefe, USNR (left) and ENS Patricia Hong, USNR (right).

VADM G.M. Davis, MC, USN, Surgeon General of the Navy administered the oath of office to 13 student nurses in the Washington area, initiating them into the U.S. Navy. The ceremony took place on 2 Dec 1971 in the Surgeon General's Conference Room, Bureau of Medicine and Surgery, Washington, D.C. The nurse officer candidates represented five colleges and were commissioned six months prior to graduation from nurses training. Upon graduation they will proceed to Officers' School in Newport, R.I. for indoctrination into the Navy Nurse Corps. Attending the ceremony were relatives and friends of the new ensigns/USNR; CAPT R.I. Myers, USN, Director Second Navy Recruiting Area; CAPT A.M. Byrnes, NC, USN, Nursing Division, BUMED; and CDR Turner, Head, Medical/Dental Officer Programs, Navy Recruiting Command. — LCDR E. Lee, NC, USNR; NRS, Washington, D.C.



Meet ENS Jane Zeller, USNR. We have the feeling she's got a great career ahead. ☺

FORMULARY NOTES

Diethylstilbestrol

A November 1971 FDA Drug Bulletin suggests that maternal ingestion of diethylstilbestrol during pregnancy has a statistically significant relationship with the appearance of vaginal adenocarcinoma some years later in the offspring exposed. The FDA is requiring manufacturers to initiate appropriate labeling changes for the product.

The real problem is the lack of case registry data regarding this previously unsuspected situation. Navy medical officers should make every effort to identify possible cases among young women who are experiencing irregular vaginal bleeding, and to submit adverse reaction reports to the FDA.

Hexachlorophene and Newborns

A December 1971 FDA Drug Bulletin publishes data on a number of studies regarding use of hexachlorophene preparations for total body bathing of newborns. The studies indicate that the development of toxic blood levels of hexachlorophene can be achieved in a very short time.

In a joint action, the FDA and the "Committee on Fetus and Newborn" of the American Academy of Pediatrics have recommended that hexachlorophene preparations not be used for home or hospital bathing of infants. In lieu thereof, they recommend:

"At present we recommend dry skin care, washing with plain soap and water or tap water alone for skin care of the newborn infants. It should be emphasized that the most important factor in the transmission of infection from infant to infant is hand

contact. This can be minimized by scrupulous hand washing before entering the nursery as well as just before and just after handling each infant. Either an iodophor preparation or 3% hexachlorophene emulsion is recommended." — CAPT Lay M. Fox, MC, USN; Chairman, BUMED Formulary Review Committee, Naval Hospital, NNMC, Bethesda, Md. ☺

NEW PANT SUIT

An official BUMED Note will soon be forthcoming authorizing the optional wearing of a new work uniform designed by D'Armigene Inc., Long Island, N.Y. The attractive new pant suit is an optional work uniform to be worn by women officers in the Medical Department while actively engaged in patient care. (Not appropriate for those engaged in administrative duties) The uniform may be purchased at the officers' own expense, at an approximate cost of \$32.00 per suit.

The suit is made of white opaque 100% Dacron material which is machine washable and drip dry. The tunic style blouse has a back zipper and collar lapels to permit the wearing of grade and corps insignia. Name tags must also be worn in accordance with U.S. Navy Uniform Regulations. The optional uniform will be manufactured by D'Armigene Inc., (and possibly other manufacturers in the future should they meet the required specifications).

Nurse Corps officers must wear their white cap, white stockings and white shoes with the uniform. Other women officers must wear beige stockings and white shoes with the optional work uniform. The standard black purse will be used.

Congratulations to CAPT A.B. Duerk, NC, USN, Director of Nursing Division, BUMED, for selecting a really attractive and comfortable uniform that should please all types and shapes, and for guiding the project expeditiously through appropriate trials and channels. (*Who says women can't make up their minds?*) ☺

TWENTY-SEVENTH ANNIVERSARY OF LIBERATION MONTH

For the more than 1,000 Navy Medical Department staff members and patients of Bilibid Prison Hospital, February 1945 was Liberation Month. These officers and men represented about 6% of the Army, Navy and Marine Corps prisoners of war who were captured by the Japanese in the Philippine Islands during World War II. Several thousand other prisoners were liberated from prison camps elsewhere in the Islands; many



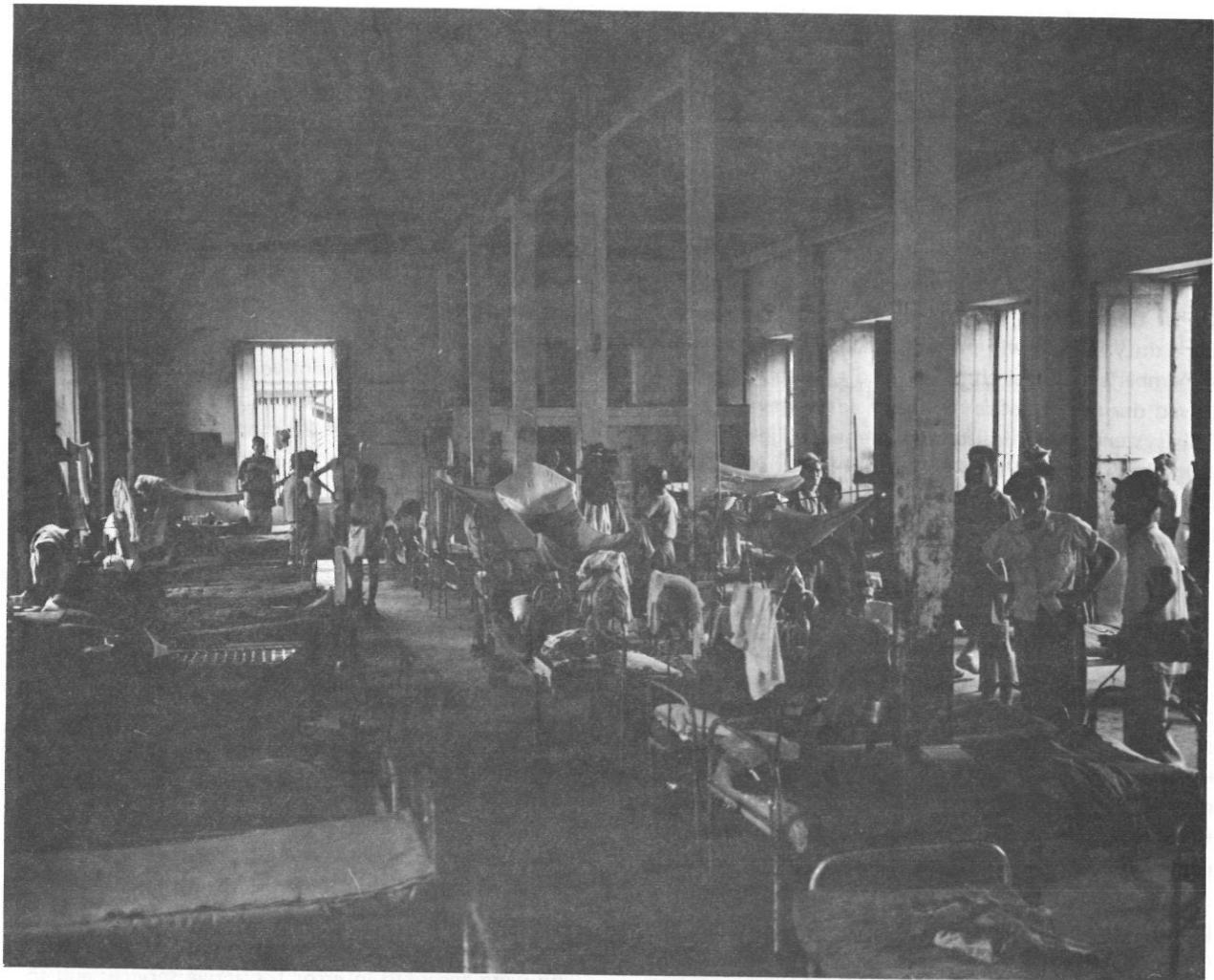
LT Elizabeth A. Woerner, NC, USNR models the smart new pant suit, an optional working uniform for women officers of the Navy Medical Department who are actively engaged in patient care. LT Woerner is a member of the staff at the Naval Hospital, NNMC, Bethesda, and has recently learned that she is to receive a Freedom Medal from the DoD in recognition of the prize-winning essay she submitted in competition.

more had been removed to the Japanese homeland and had to await the end of the war.

The Bilibid Prison Hospital — located in the heart of Manila — was a continuation of the U.S. Naval Hospital, Canacao. Many Navy Medical Department officers and men functioned under severe privation for more than three years as a hospital staff in captivity. Throughout the war the hospital had an average patient census of about 700, at times expanded to more than 1,000. About 150 Navy Medical Department

officers and men were killed in action or died while prisoners of the Japanese.

About 25,000 U.S. personnel were on duty in or near the Philippines when war began. Some ships were able to leave the Islands, but nearly 15,000 men became prisoners of war. Most of these — about 12,000 — were at Corregidor when that fortress was surrendered. The exact number killed, missing or taken prisoner on Bataan and elsewhere may never be known. — LT W.K. Patton, MSC, USN (Ret), Medical Historian, BUMED.



This room was the hospital provided for ailing POWs among those interned in Bilibid. Beds were a luxury permitted later by the Japanese.



Liberated U.S. prisoners of war were photographed in Bilibid prison by Navy photographers on 8 Feb 1945.

OFFICIAL INSTRUCTIONS AND DIRECTIVES

MANUAL OF THE MEDICAL DEPARTMENT

Change 69, 23 Sept 1971

This change introduces the "Master Medical Record" concept to the naval service. Basically, this concept deletes the requirement for the periodic "stripping" of a field Health Record and forwarding it to BUMED. Under this concept, the Health Record at the member's duty station will provide a cumulative record of a member's physical condition and of treatments received during his entire period of active naval service. This system of medical record keeping aligns the Navy with the Army and the Air Force. Eventually, by attrition, BUMED will not maintain a service medical record file on active duty personnel.

BUMEDINST 1500.7B OF 15 NOV 1971

Subj: Part-time Outservice Training; administration of

BUMED encourages Medical Dept. personnel to take advantage of part-time outservice training in accredited civilian institutions and will defray 75 percent of total expenses, provided funds are available, for courses directly related to areas of Medical Dept. responsibility. Consideration will also be given to requests for other courses if they are a necessary part (required credits or prerequisites to desired courses) of a fully planned program leading to a degree or certificate which will enable the applicant to assume increased responsibility or to function more effectively towards accomplishing the mission of the Medical Dept. Hospital Corps personnel initially entering the training program who do not meet the above course-content requirements may be considered if they are taking a course relating to one of the professional improvement programs leading to a commissioned officer grade.

To be eligible to participate, personnel must be members of the Medical Dept. on active duty. Officers must agree to remain on active duty for two years following completion of the approved course(s). Enlisted personnel must have sufficient obligated service remaining to insure completion of course requested. The commanding officer is to review and forward all requests with his endorsements to BUMED.

BUMEDNOTE 1510 OF 26 NOV 1971

Subj: Training for enlisted personnel in preventive dentistry

The U.S. Air Force School of Health Care Sciences at Sheppard AFB, Texas, offers an eight-week Preven-

tive Dentistry Specialist Course. Beginning with the class convening on 10 May 1972, two positions in each class have been reserved for navy personnel. Approximately 20 percent of the course reviews subjects such as oral anatomy and pathology, chemistry, radiology, equipment maintenance and dental administrative procedures. The bulk of the course is devoted to training students to perform periodontal scaling, teach effective oral hygiene procedures and to plan and conduct preventive dentistry programs.

Dental technicians (E-4 and above) with a minimum obligated service of 22 months after completion of the course are eligible. Nominees will be allocated to the course on a first-come basis. Personnel are to be assigned to the school on a returnable quota and costs are to be borne by the command to which the nominee is attached.

BUPERSINST 1910.23

BUMEDINST 1910.2F OF 8 DEC 1971

Subj: Disposition of enlisted and inducted members by medical board action by reason of physical disability, military unsuitability, and enlisted or inducted error

Promulgates standards and procedures for the separation of enlisted and inducted members from the naval service by medical board action who are functionally incapable of performing useful service, or who were accepted in error for active service; and to invite attention to changes in procedures with regard to the administrative separation of the above members.

BUMEDNOTE 5212 OF 15 NOV 1971

Subj: Transferring X-rays and Medical Records to Federal Records Centers

Recent reports received from the National Personnel Records Center (Military Personnel Records), St. Louis, Mo., indicate numerous discrepancies in records transfer procedures, particularly regarding X-rays. The following are examples:

a. Medical (diagnostic) X-rays, which should be disposed of locally or transferred to the nearest Federal records center pending eligibility for disposal, are being received by the National Personnel Records Center.

b. Temporary medical X-rays are being interfiled and shipped with permanent military personnel entrance and separation X-rays.

c. X-ray logs or index cards needed as locator

media are not being included with X-ray shipments.

d. Clinical (inpatient) records are being received without cross reference media.

e. Shipments of medical administrative records, such as officer-of-the-day logs which have short retention periods and should be disposed of locally, are being received.

f. Records are being shipped in improper containers.

This Notice directs stricter compliance with the standards and procedures for the disposition of X-rays and medical records as set forth in SECNAVINST 5212.5B.

BUMEDINST 5512.2B OF 13 DEC 1971

Subj: Name Badges for staff personnel

Requires the wearing of name badges by staff personnel at BUMED command activities providing medical/dental care. The use of name badges is a valuable asset in improving patient morale and public relations. Name badges shall: (a) Indicate person's last name; initials, grade/rate, and title may be included; (b) Be of standard size, design, and construction throughout the activity; (c) Be worn by all staff military and civilian personnel who come in contact with patients or the public while performing their duties; (d) Be worn on the outer duty garment (e.g., doctors' coats, technicians' jackets, etc.) on the right breast at the same level as military ribbons. The badges shall be purchased with local O&M funds.

BUMEDINST 6100.5 OF 8 NOV 1971

Subj: Medical Board Data System

A revised system for recording medical board information and reporting medical board findings has been instituted by changes to section III, Chap. 18, MANMED (Change 70). These changes, together with a need for other refinements, have necessitated a major revision to the data processing procedures supporting the system. This Instruction provides coding and submission instructions for the first carbon copy of the Medical Board Report Cover Sheet, NAVMED 6100/1 (Rev. 1-72). A significant change in requirements is that a member, unless otherwise indicated, *need not* be admitted to the sick list in order to appear before a medical board. This requires that the subject system be managed independently of the inpatient system. Initial reporting under this Instruction became effective for medical boards convened during the month of January 1972.

BUMEDNOTE 6300 OF 17 DEC 1971

Subj: Vasectomies performed for family planning purposes; reporting of

In order for BUMED to demonstrate trends in the male sterilization aspect of the family planning services outlined in SECNAVINST 6300.2A, statistical data on surgical sterilization procedures are required. These data shall be reported monthly in the "Selected Data" section of the Medical Services and Outpatient Morbidity Report (NAVMED 6300/1, Report Control Symbol MED 6300-1), required by BUMEDINST 6300.2. A special report of summary data for prior periods was required by the 5th working day of February. Monthly reporting shall be continued through June 1972; if reporting beyond that date will be required, BUMEDINST 6300.2 will be modified accordingly.

BUMEDNOTE 6320 OF 6 DEC 1971

Subj: Visa medical examination for alien military dependents at military facilities overseas; performance of

A recent agreement was made by the DOD and Department of State concerning medical examinations of visa applicants who are alien dependents of Armed Forces personnel. BUMED has been requested to disseminate the information provided in enclosures (1) and (2) of this notice which is applicable to all overseas naval hospitals and naval medical facilities having one or more medical officers.

BUMEDINST 7220.1A OF 16 NOV 1971

Subj: Medical Corps Officer Continuation Pay Contracts

Original Selection. The Continuation Pay Selection Board will convene each fall, or more often if circumstances dictate, to select qualified Medical Corps officers. After final approval of the Board report each officer selected will be notified by letter, indicating the critical medical specialty category in which designated and the date eligible for continuation pay. Each selectee will receive a Statement of Intent which is to be completed and returned to the Bureau. This Statement of Intent is used for budgetary information and planning purposes and is not binding. Those officers who have previously incurred an active duty service obligation for residency or other training must extend any remaining active duty service obligation by one year to participate in this program. This agreement is included in the Continuation Pay

Designation and Acceptance contract for the first year Continuation Pay is accepted. There is no requirement to extend active duty service obligation for future annual renewal contracts except for those who may acquire an obligation subsequent to the initial acceptance of continuation pay.

Renewals. The original copy of the continuation pay contracts will be maintained in BUMED. Renewal dates will be identified and continuation Pay Renewal Forms will be forwarded to each eligible officer prior to the expiration date of the contract currently in force. Selected officers may execute a contract for a period of one to four years. The amount of the continuation pay to be paid *during each year's installment* on any multiyear contract is established at the base pay of the officer at the time he signs the contract.

Increases to his base pay subsequent to the date of his signature on the multiyear contract will not be considered in future payments. In certain cases, as determined by the Surgeon General, continuation pay for multiyear contracts may be paid in fewer installments if it is determined to be in the best interest of the officer. Request for consideration shall be forwarded to the Surgeon General via the commanding officer, who shall make a positive recommendation in each case together with the reasons therefor.

A Medical Corps officer who does not, for any reason, serve on active duty as a medical officer for the entire period agreed to in his contract must refund that portion of the payment which represents the unfulfilled part of active duty obligation. (This does not give the officer the voluntary option to negate the contract.) ☷

+ In Memoriam +

CAPT Frederick D. Beckwith, MC, USN (Ret.) died 13 Nov 1971 at the Naval Hospital, San Diego after a prolonged illness. He was born on 17 Jan 1926 in Hartford, Conn. CAPT Beckwith was a graduate of Yale University; he received his M.D. from Georgetown University Medical School and a master's degree in public health from the University of California at Berkeley. He entered naval service during WW II as a line officer and later, after earning his medical degree, was commissioned LT(jg), MC, in 1952. He was designated a Flight Surgeon in 1953 after attending the School of Aviation Medicine. During the Korean conflict he served with the Marines. He subsequently served as medical officer in various fighter, patrol and anti-submarine squadrons. CAPT Beckwith also served as senior medical officer aboard the USS KEARSARGE, USS KITTY HAWK and the USS ENTERPRISE. He was certified as a diplomate by the American Board of Preventive Medicine in aerospace medicine in 1964. He was also a diplomate of the National Board of Medical Examiners. He was a member of the American Medical Assoc., Aerospace Medical Assoc., and the Tail Hook Society. CAPT Beckwith was medically retired in Mar 1971. He is survived by his wife, Faith, and two daughters, Sharon and Barbara Beckwith.

CDR Kenneth R. Coburn, MSC, USN (Ret.) died 23 Oct 1971 at his home in Rockville, Md. He was born 9 Oct 1925 in Windsor, Ontario, Canada. CDR Coburn entered the V-12 Program in 1943 and later attended the USNR Midshipman School at Notre Dame, where he received his B.S. degree and was commissioned ENS,

USNR on 8 Mar 1945. In June 1946 he was released to inactive duty. Returning as a physiologist in Jan 1951, he served as OinC, Survival Unit and Training School of Aviation Medicine. Later he attended Ohio State University (DUINS) and received a Ph.D. in physiology. After two years as Director of Research, Royal Naval Air Medical School, England, CDR Coburn was ordered to NAEC where he served as Aerospace Simulator Branch Officer and Head, Cardiopulmonary Research Team. In 1967 he was appointed Head, Aerospace Medical Branch of the Air Systems Command where he served until his retirement in Oct 1968. After his retirement, CDR Coburn served as a physiologist for the National Aeronautics and Space Administration. An authority in the field of aerospace medicine, he authored more than 40 articles and was best known for his research on the effect of acceleration on humans. CDR Coburn worked with the original seven U.S. astronauts in preparing them for their experiences with acceleration during space flight. He is survived by his wife, Gillian, a son and daughter, and his parents.

CAPT William L. Engelmann, MC, USN (Ret.) died as a result of cardiac arrest on 31 Oct 1971 in Orlando, Fla. He was born 12 Dec 1905 in Rockwell City, Iowa. After receiving the degree of Doctor of Medicine from the University of Iowa Medical College in 1931, he was commissioned LT(jg), MC, USN in June 1931. CAPT Engelmann served his internship at the Naval Hospital, San Diego and subsequently served in various hospitals and ships on the West Coast and

Pacific area. He assisted in fitting out the USS CASCO (AVP-12) and was Medical Officer of that ship from its commissioning in Dec 1941 until May 1943. CAPT Engelman was awarded the Purple Heart for wounds received in the engagement of the CASCO with a Japanese submarine and a Letter of Commendation with Ribbon for his participation in the landings at Adak and Attu in the Aleutian Islands. In July 1944 he reported as Executive Officer of the U.S. Medical Supply Depot, Oakland, Calif., where he served during the remaining period of WW II. After graduation from the Industrial College of the Armed Forces in July 1947, CAPT Engelman served as Deputy Director, Material Division, BUMED, with offices in Brooklyn, and later as its Director. In July 1952 he was assigned as Chief of the Field Branch, BUMED before coming to Washington where he became Comptroller and Director of the Comptroller Division, BUMED. CAPT Engelman later served as Professional Assistant to the CO, Naval Hospital Bethesda prior to becoming CO, Naval Hospital, Jacksonville, Fla. His name was placed on the Retired List in July 1961. He is survived by a son, David R. Engelman, LT, MC, USNR.

RADM Lester L. Pratt, MC, USN (Ret.) died at his home in San Diego, Calif., on 3 Dec 1971. He was born in Bellefontaine, Ohio on 29 June 1881. He was commissioned MC, USN after receiving his Doctor of Medicine degree from Ohio State University in 1907. When the U.S. entered WW I in 1917, ADM Pratt was assigned to the Fifth Marine Regiment and was attached to the Second Marine Brigade, Second Division, American Expeditionary Forces, as Battalion Regimental

Surgeon, which included command of all field hospitals of the Second Division. He participated in all major engagements to the end of the war and was awarded the Navy Cross for extraordinary heroism. In recognition of his services and wounds sustained in these same actions, he was also awarded the Silver Star Medal, the Distinguished Service Cross and the Purple Heart with Oak Leaf Cluster. After returning to the U.S. in 1919 and following two brief assignments, ADM Pratt was assigned as Medical Officer of the San Domingo Constabulary for three years during the occupation of San Domingo. In the spring of 1927, he became Chief of Medicine aboard the hospital ship RELIEF. He served as Force Medical Officer, Staff of Commander Base Force, in the USS ARGONNE, flagship on the West Coast. During WW II, ADM Pratt directed the construction of the naval hospitals in Jacksonville, Fla., and St. Albans, N.Y. and for his services during that period he received a Letter of Commendation with Ribbon from the Secretary of the Navy. In January 1946, he was ordered to duty with the Naval Retiring Board in San Diego where he served until his retirement on 1 July 1947, having reached the statutory age; he was promoted to RADM on the basis of combat awards. In addition to the medals previously mentioned, he also received the Victory Medal with five clasps; the Dominican Campaign Medal, American Defense Service Medal, Base Clasp; American Campaign Medal; and WW II Victory Medal. He was also awarded the Croix de Guerre with Palm and the Fourraguerre (Red and Green) by France. He is survived by his wife, Christine, and a sister. ☺

MARINE CORPS COMMANDANT

GEN Robert E. Cushman Jr., has succeeded the former Commandant of the Marine Corps, GEN Leonard F. Chapman, Jr., who retired 31 Dec 1971.

GEN Cushman had formerly served as Deputy Director of the Central Intelligence Agency since April, 1969; and previously as Commanding General of the III Marine Amphibious Force in Vietnam.

Earlier in his career, GEN Cushman served as Assistant for National Security Affairs to President Richard Nixon when Mr. Nixon was Vice President of the U.S. ☺

FIRST SECNAV/CNO FELLOWS

Admiral Zumwalt in his Z-gram 89 established the SECNAV/CNO Fellow Program, to give outstanding young officers an opportunity to observe and participate in the development and administration of naval policies and doctrines.

The first two junior naval officers appointed as SECNAV/CNO Fellows have assumed duties for one year. They are: LCDR Bernard F. McMahon,

former CO of the fleet minesweeper USS DETECTOR (MSO-429); and LCDR Donald G. Gentry, previously assistant navigator on board the aircraft carrier USS KITTY HAWK. They will work closely with high-level Navy leaders and attend policy meetings with Secretary Chafee and Admiral Zumwalt. Each Fellow will prepare a detailed proposed annual program for his successor.



Discussing the inauguration of The Chief of Naval Operations/Secretary of the Navy Fellowship Program during an informal Pentagon ceremony in Dec. 1971, are (left to right): ADM Elmo R. Zumwalt, Jr., Chief of Naval Operations; LCDR Donald G. Gentry, USN; LCDR Bernard F. McMahon, USN; and Honorable John H. Chafee, Secretary of the Navy.—Nav News Bulletin, CHINFO, Washington, D.C. 

United States Navy Medicine

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NOTICES should be received not later than the third day of the month preceding the month of publication.

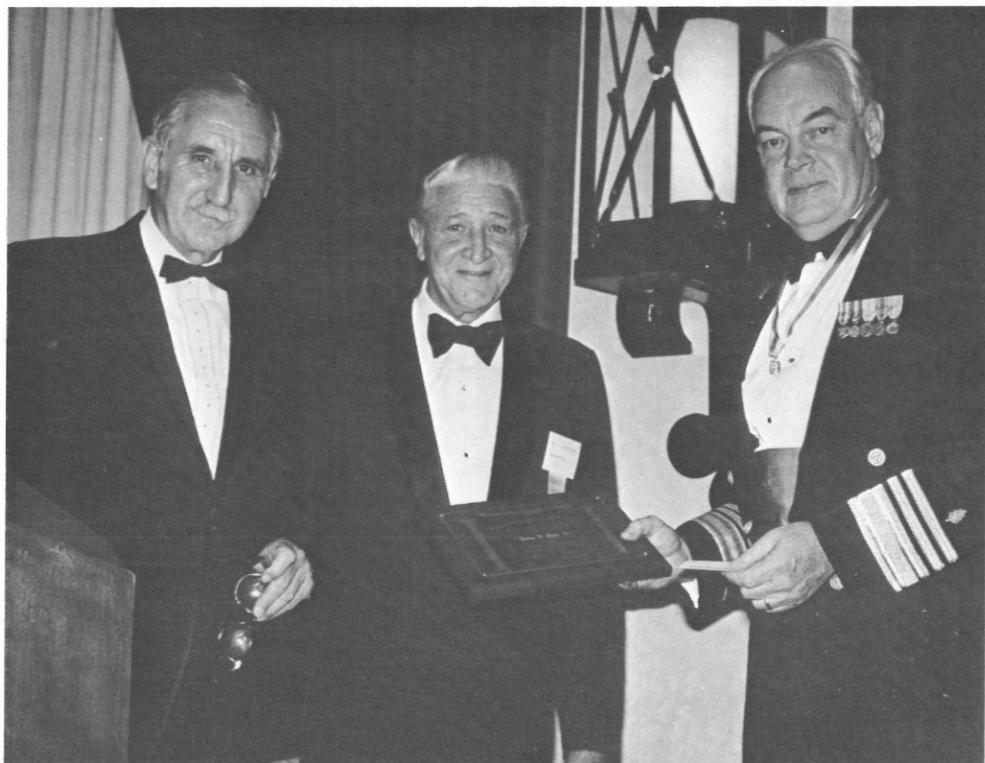
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VADM George M. Davis, MC, USN, Surgeon General of the Navy was elected an Honorary Fellow of the International College of Dentists at last year's meeting of the College which was held in conjunction with the Annual Meeting of the American Dental Association at Atlantic City. VADM Davis was cited for his "distinguished achievements and contributions to the dental profession and in appreciation of outstanding services rendered to the cause of oral science." He is pictured above with Dr. Francis J. Fabrizio of Washington, D.C., Chairman of the Honorary Awards Committee of the College (on the left) and Dr. Woodson T. Berthright of Washington, D.C., Past President, USA Section, International College of Dentists, as he accepted the award.—PAO, BUMED, Washington, D.C.

U.S. NAVY MEDICINE

*U.S. Government Printing Office: 1972—483-831/V-7